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ABSTRACT

A study examined the training provided to workers by 20 firms across the Nation. In the 12 years between 1969 and 1981, American firms increased their expenditures on employee training from $2.4 to $3.5 million according to an analysis of data gathered by Current Population Surveys. In the same period, members of the American Society for Training and Development nearly tripled from 8,600 to 22,600. Nevertheless, the extent of firm-sponsored training appears to be related to business cycles since a temporary decrease in such training was noted during the 1981-1983 recession. Less than one-fifth of those trainers interviewed as part of this research project had been trainers in 1972. In general, the larger a firm and the more complex its services, the more likely it is to have a management development program with a built-in strategy for developing and teaching the company culture. As corporations have changed their attitudes toward affirmative action, and as the new generation of trainers has needed to establish their profession, present-day trainers interviewed in the study tended to see themselves as part of a larger movement in which the personnel function within their firms provides an integrated approach to human resource development. (An inventory for firms to use in assessing their own training programs is included in this report.) (MN)

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TRAINING'S PRACTICES:
EDUCATION AND TRAINING WITHIN THE AMERICAN FIRM

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EDUCATION AND TRAINING WITHIN THE AMERICAN FIRM

Robert Zemsky
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CHAPTER I

INTRODUCTION

In the past, Americans have learned about working by working, acquiring job skills, for the most part, by identifying colleagues best-suited to teach by example. The values and rewards associated with work are then shaped largely by experiences in the workplace itself.

In recent decades, however--and particularly since the Second World War--many of the nation's largest and most prestigious firms, as well as numerous small ones, have augmented this traditional on-the-job training with increasingly formal instructional programs. The emergence of such well-defined programs of firm-supplied education and training has led some observers to predict a fundamental transformation in the way American workers acquire job skills. As growing technical complexity and behavioral expectations reduce the effectiveness of traditional on-the-job training, firms presumably will become more attached to formal learning systems provided both by themselves and others. Firm-supplied programs, it is argued, will be increasingly responsible not only for training first-time workers, but also, perhaps with government incentives, for retraining mature employees whose jobs have been altered or eliminated--supplementing their skills, and preserving their stake in a changing economy.

The purpose of our analyses for the National Institute of Education is, in part, to evaluate the prospects for this kind of transformation. In order to assess the future of firm-supplied education and training, however, we must begin by determining the current status of such programs. This report is an attempt to summarize how they operate today--their scale, organization, rewards, and effects.

Our findings are based on case studies of twenty firms with established reputations for providing formal training to employees, on analyses of federal, state, and local policies that influence training, as well as on a statistical summary. In all, we conducted over three hundred separate interviews with the trainees, managers, and senior executives of firms. They were asked to describe how their employees acquire job skills, how the policies and practices of the firm either encourage or discourage the development of formal training programs, and how these programs reinforce, supplement, or replace the traditional emphasis on on-the-job training.

Our first observation simply confirms the extraordinary diversity of firm-supplied education and training programs. No two firms, even those in the same industry, are identical in their training, for each education and training program reflects the unique culture of the firm. Any attempt to explain how and why American firms train their workers is further handicapped by the fact that so much more is assumed than known about firm-supplied training. We lack even the beginning of research literature describing firms' training practices. A few economists, interested in education's contribution to economic growth and productivity, have speculated on training's contribution to the accumulation of human capital. Other economists, concerned with the dynamics of the labor market and the distinction between good and bad jobs, have noted that the former are characterized by internal promotional ladders and training opportunities, while less good jobs, exemplified by those in the new service industries, assume the basic interchangeability of workers at the most minimal training expense.

Economists have also contributed the basic premise that it is the firm that pays for job- and task-specific training, while it is the employee who bears most of the cost for generic education. Sociologists, when they have focused on the organization and purpose of work, have also commented on the function of training and education within the workplace. Surprisingly, however, there has been little sustained attention given to the dynamics of firm-supplied training as an agent of social change. No less surprising has been the absence of sustained research by the nation's leading busi- ness scholars. The best documented survey of firm-supplied training and education remains Lusterman's 1977 study for the Conference Board. More recently, a series of studies of the strengths and weaknesses of American enterprise has suggested that an ongoing program of employee training is a key indicator of a firm's long-term success. Significantly, however, these studies present little direct evidence of how and why the cited firms conduct their training programs, and ignore completely several significant examples of firms with heavy investment in employee training that have in fact fallen on hard times. Finally, there is a general notion that certainly the Japanese, and most probably the West Europeans, have a better understanding than do Americans of the need to match investments in physical capital with those in human capital. Even this understanding, however, more often than not derives from *ad hominem* arguments.

This absence of research literature is only one of several indications of how little we know about firm-supplied training and education. The debate over the future direction and purpose of this training is filled with estimates of annual private training expenses that range from a low of $2 billion to a high of $100 billion per year. Most estimates are in the $30 to $40 billion range. Based on our analysis of these estimates, and our examination of well-established training programs at twenty firms, we can state categorically that estimates of the total annual expenditure of firms for the training and education of their employees are simply not reliable. Indeed we view with deep skepticism any data purporting to measure total firm-supplied training and education in dollar terms. The problem is not so much that firms, when asked, will not report their annual expenses for training. Rather, most firms simply do not know the answer to that question. If pressed, most comptrollers can document the direct expense for training in terms of travel, supplies, tuition remissions, consultants, and vendors. They can probably estimate the amount of direct personnel cost associated with their training departments, though comptrollers are the first to tell you that training personnel often have other responsibilities as well. Instructional cost, when the instructor is not a trainer but a manager, technician, or supervisor, is seldom included in the accounting. Nor, for that matter, are the salaries of the trainees often included in the estimate of training costs. The training function is almost never assigned its fair share of the firm's space and other overhead costs. Furthermore, much of the training function is so decentralized that corporate headquarters do not have the branch figures in hand.

The absence of reliable cost-estimates only partially explains our inability to measure the changing scale and scope of firm-supplied training. By the early 1980s a growing number of informed observers believed firm-supplied training represented a dramatically new investment in formal education by the private sector. In commissioning this present study, the National Institute of Education justified its commitment of discretionary research funds to an hitherto neglected topic by noting

> one reason to suspect that worker education and training will be increasingly emphasized in the years ahead is the decline in American productivity. Discovering the causes of, and remedies for, this slow but steady decline in the productivity growth rate is of the utmost importance to the economic well-being of the United States. Although the relationship between productivity and education and training activities has not been established empirically, anecdotal reports indicate that employers increasingly view these activities as a way to enhance workers' capabilities and performance.

The Institute's concern was in part that the growth of firm-supplied training was at least an implicit measure of the failure of traditional educational programs to provide the job-related skills required by the nation's changing economy. Evidence to illustrate the failure of the schools in preparing young Americans for work was supplied in the fall of 1981 in a report by Robert Holland, President of the Committee on Economic Development, to a joint conference sponsored by the American Council on Education and the American Society for Training and Development. Holland, who had interviewed many chief executive officers of American firms, reported a growing sense of frustration with "the seriously inadequate performance of our educational establishment." Holland described the officers he surveyed as

> somewhere between disgusted and outraged, typically, in terms of how they felt about the quality of employee education relative to their needs, and not only theirs, but the other businesses up and down the street. It was one of the most unanimously felt feelings I got in my whole survey. . . .

Speaking specifically of higher education's perceived failure in the field of adult, job-related education, Holland reported that firms' officers saw a need for

> much more skill training--retraining--at the adult level to help people adapt to what they thought were going to be much more rapidly changing technical demands of jobs over the next decade or two. . . .

Few of the executives surveyed wanted their firms to bear either the cost or the responsibility of providing basic skills and general education. Most wanted to support effective school systems; if those systems failed, however, firms would be compelled to fill the gap. On this point, Holland was emphatic.

> I can only think of two men I talked with all around the country who felt that they had the kind of relationship with academic institutions where the bulk of their organizations' need for that kind of higher education would be met. All the rest thought there was going to be a major shortfall, and they thought it was a waste and a shame. That is one of the things that is pushing many companies into continuing education, career education, mid-life education. . . .

Holland and the business executives with whom he spoke are not alone in believing that the failure of traditional educational systems to create job-skilled individuals lies behind the apparent growth of firm-supplied training and education programs. According to Peter Drucker, writing in the Wall Street Journal, "Demand for education is actually going up not down. What is going down, and fairly fast, is demand for traditional education in traditional institutions." As if to celebrate Drucker's aphorism, the New York Times, in its 1981 "Fall Survey of Education," devoted the entire issue to continuing education. In the lead article, Gene Maeroff suggested that

> Each time a company offers a course that meets the needs of its employees, colleges and universities lose potential students. Furthermore, if the trend continues for more of these

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> courses to be recognized for credit, institutions are in jeopardy of losing the near-monopoly they have enjoyed over the credit portion of the educational-delivery system. The implications for higher education are similar to those in the banking field as brokerage houses and other financial institutions encroach on the traditional domain of banks.

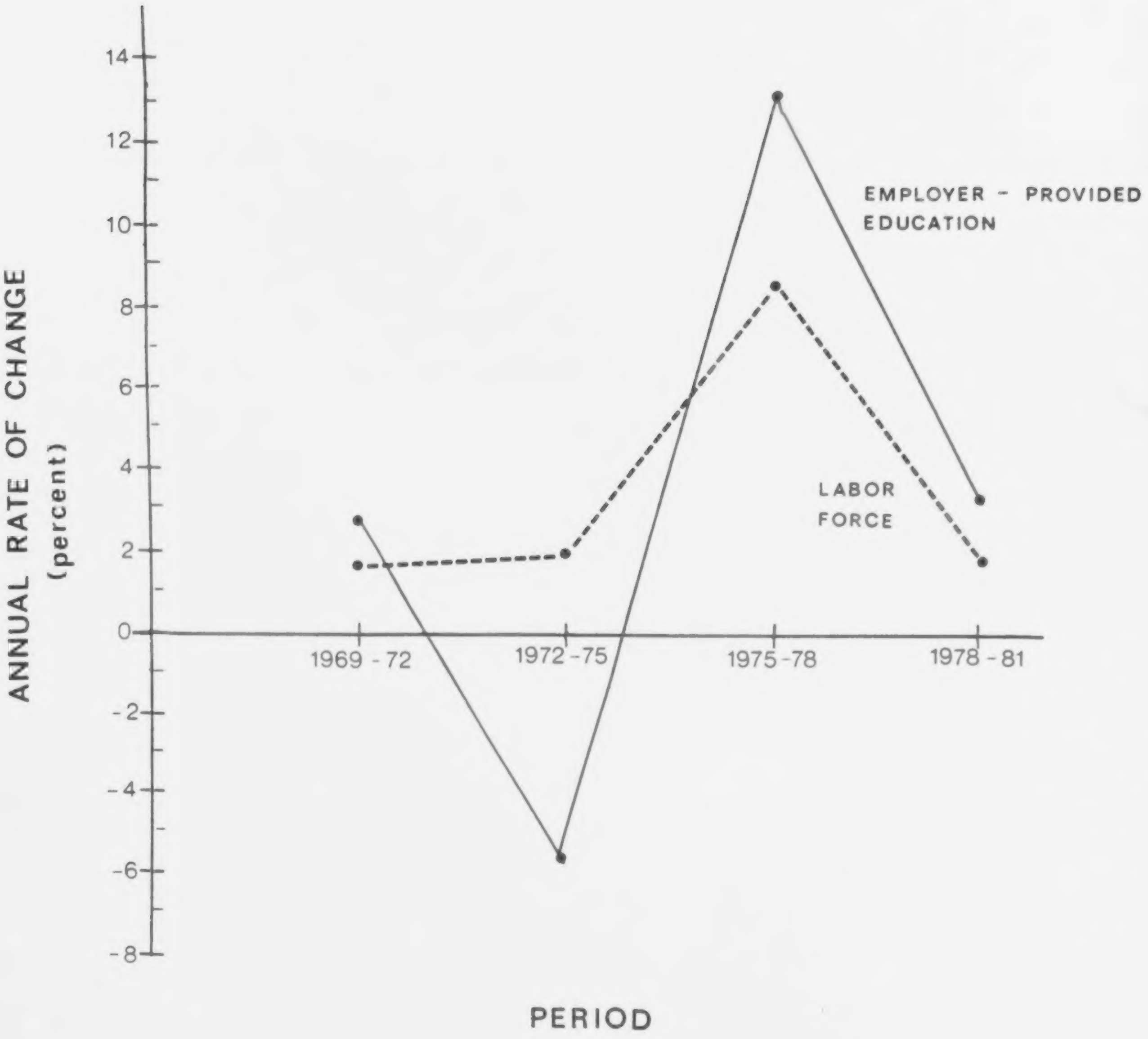
Most of the statistical data we have been able to assemble testifies to the fact that there was substantial growth in firm-supplied training and education programs in the 1970s. Our analysis of the May 1969 and 1981 Current Population Surveys (CPS) data on educational activity indicates that the number of Americans who reported being trained directly by their employing firms increased from 2.4 million to 3.5 million in those 12 years. The number of trainers in firms increased even more dramatically. The rolls of the American Society for Training and Development (ASTD), the leading professional organization for trainers, nearly tripled from 8,600 in 1969 to 22,600 in 1981.

We understand better now just what this expansion meant for both the American educational system and the needs of the economy as a whole. While firm-supplied programs of training and education did in fact grow in the 1970s, most of that growth paralleled an equally dramatic growth in the size of the labor force itself. Again, when we go back to the data from 1969 and carry our analysis through 1981, the last year for which the Current Population Survey for educational activity is available, we see that the overall probability of an employee receiving training from his or her employer changed very little. In fact, the probability of an employee reporting direct training from his or her firm in 1981 was slightly less than in 1969. Put simply, in the early 1980s American firms were training more workers because they were employing more workers.

Yet even these statistics gloss over what was a fundamental acceleration of firm-supplied training between 1973 and 1978. Over those six years the number of employees who reported receiving firm-supplied education and training increased 22 percent, although the probability of receiving training declined .4 percent. What is clear from the data on training frequency arrayed in Figure 1 is that the incidence of training is a function of the business cycle itself. As the nation slid into the oil embargo recession of 1973-1974, firms reduced their investment in training and education more sharply, in fact, than the leveling off of the rate of employment seemed to dictate. As the nation's economy quickened over the last half of the 1970s, firms again made major investments in building the skill inventories of their employees. Training again increased, this time more quickly than the rate at which the labor force itself grew. Figure 1 seems to indicate that training was

Figure 1

RATES OF GROWTH IN PRIVATE EMPLOYER - PROVIDED EDUCATION AND THE PRIVATE LABOR FORCE



often one of the first victims of a firm's attempt to reduce expenses in the face of worsening times. Still, that reduced training opportunity did not represent a permanent loss so much as a deferment. In good times, with the economy expanding and the firm's prospects improving, the willingness to invest in human capital returned with sufficient force to recover the underinvestment of the recession years.

This pattern appears to have repeated itself during the 1981-83 recession. While we do not yet have comprehensive interview data from the CPS sample for 1984, interviews across the twenty firms included in our study amply attest to the fact that training activity dropped faster than the decline in employment. Not atypically, the chairman of one of the largest manufacturing firms in our study announced at the onset of the recession, when nearly 20 percent of his manufacturing workforce was laid-off, that henceforth all training activities except those mandated by federal regulations would be cancelled. Even safety-training teams in hazardous industries were not immune to reduction. In one heavy construction firm, in which overall employment was cut in half, the safety-training team was reduced from twenty to five members, while the firm's skilled training department was reduced from twelve to two members. Only in firms immune to the recession (principally electronics firms) and in major financial firms, was the rate of training held constant and the scale of the training staffs maintained.

Amidst this welter of statistics there is still one more pattern suggested by our interviews at twenty firms. Less than a fifth of the trainers we interviewed had been trainers in 1972. About half had begun their training careers after that date and the remainder had been transferred into a training assignment sometime during the 1970s. These years also marked a major transformation in the content of firm-supplied training, largely in response to two factors. The first was the aggressive pursuit of equal employment opportunity and affirmative action by the federal government. The second was a greatly expanded program of safety-training mandated by the Occupation Safety and Health Administration (OSHA). The emphasis in the latter was equally divided between the training of all employees in safety rules and the training of supervisory employees in the management of safety. In the cases of the Equal Employment Opportunity Commission (EEOC) and affirmative action, the emphasis was primarily on supervisory and management training. What was required, it was argued, was a fundamental change in the way managers and supervisors treated people, supervised their work, recognized their individual needs, and helped them develop their careers in fulfillment of their own aspirations. Affirmative action, and hence much of management training, begins with the premise that equal opportunity will result if managers have a better and fuller comprehension of the worth of all people.

In the 1970s, this emphasis on good "people management" attracted individuals with new and diverse talents and experiences to firm-supplied training. Some moved naturally from the general personnel function into management and development training, under the auspices of personnel departments. Other recruits were young managers who saw in the emerging new management-training programs an opportunity to utilize their liberal arts skills more fully. As the decade wore on, this kind of training itself became more professionalized, appealing to younger college graduates with education in organizational behavior--the leading academic speciality among formally educated trainers. By the 1970s, ASTD had changed its name from the American Society of Training Directors to the American Society of Training and Development. Today, trainers responsible for management development and behaviorial training see themselves as part of a larger movement in which the personnel function within major firms provides an integrated approach to human resource development (HRD).

The need of firms to change managers' attitudes toward affirmative action, and this generation of trainers' need to

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establish their profession, were two of the causes of a fundamental shift in the focus of firm-supplied training in the 1970s. The third cause was the growing complexity of the American firm itself. In the 1960s, 1970s, and early 1980s many major American firms were growing through acquisition and merger, often expanding to include foreign subsidiaries. This diversification emphasized the need to establish within firms an identifiable company culture. In classical management terms, it was necessary to make the management parts of the firm interchangeable, even though their functions were quite diverse. The most successful at this complicated task of creating a company culture was, by everyone's account, IBM. Its culture goes beyond the often-mocked image of uniformity of dress, style, and aspiration, not to mention commitment to success, commonly associated with the firm. Virtually all of the management trainers we met, and most of the principal managers we interviewed, were familiar with the major outline of IBM's management training commitment. Managers everywhere wistfully commented on IBM's mandated requirement of forty hours of management training per year, a commitment few of the firms in our study even came close to matching. Whether or not they had read Peters' and Waterman's In Search of Excellence (and a surprisingly large number had), most managers we interviewed echoed this point of view:

> The excellent companies treat the rank and file as the root source of quality and productivity gain. They do not foster we/they labor attitudes or regard capital investment as the fundamental source of efficiency improvement. As Thomas J. Watson, Jr., said of his company, "IBM's philosophy is largely contained in three simple beliefs. I want to begin with what I think is the most important: our respect for the individual. This is a simple concept, but in IBM it occupies a major portion of management time."

The larger the firm, the more complex and diversified its products and functions, and the greater its investment in a strong centrally-controlled personnel policy, the more likely it was to build into its management training program an explicit strategy for developing and teaching the company culture. In the 1970s the means to accomplish this end were readily at hand--an organizational structure had been created to improve supervisory training in pursuit of equal employment opportunity goals, and a growing cadre of trainers was eager to bring into practice the precepts of organizational development. By far the most successful single training package, Kepner-Tregoe, (or simply K + T training, as it is known in most major firms) directly addressed, in its unique methodology, the need of firms to have management teams to think as one, using familiar terms with clear firm-specific references. One grizzled plant manager with thirty years experience, who had only recently converted to K + T, told us, "I don't care what its theory is or why it works. I know that when my people go at it the K + T way they are talking about the same problem and the same means to a solution."

The very success of management training, with its charge to foster and strengthen the company culture, was not without its ironies or cost. In the larger public, the term "corporate training program" still conjures up images largely associated with vocational education, industrial training and the "how to" diagrams of Popular Mechanics. The fact is that the broadly defined realm of manufacturing/craft training frequently took a back seat to management development in the 1970s, even in the most technically sophisticated firms. In our study we found a pronounced and persistent tilt in favor of developing management training programs. This pattern can best be exemplified by the career of a single trainer. Bob W. graduated from one of the midwest's best known collegiate programs for the training of vocational teachers--a program which has since converted to general education for lack of job openings for vo-ed teachers. After 10 years as a vocational education instructor in a public school system, Bob went to work for one of this country's largest firms where he was given special responsibility for training and quality control for the firm's contribution to the Apollo space program. There he thrived until 1973, when the phaseout of the Apollo program made his group redundant. At this point, the firm, recognizing Bob's instructional talent, converted him into a stand-up management trainer and eventually made him senior manager for management training.

We understand now that the growth that public commentators have sensed in firm-supplied training and education of the 1970s was, in part, a natural function of the business cycle, and in part the result of a not-always-well-understood shift of attention within the firms towards management training and development. Rather than establishing counter or alternative systems of education, major firms with substantial investment in training spent most of their efforts teaching managers and supervisors the "people skills" necessary to manage increasingly complex firm enterprises.

There are two important footnotes to our findings. First, so complete is the identification of the term "training" with the personnel/human resource development function in major firms, that some major training activities go unrecognized as such. In fifteen of the twenty firms examined in this study, original contact was made through a senior executive, usually the CEO. Though our explanation to the firm gave no indication that we were particularly interested in management training, in each case our principal contact within the firm, as assigned by the senior executive, was either with a senior personnel officer or the senior training official who reported to the senior personnel officer. Only after the initial site visits, which developed the scope of interviews for the particular firms, were we able to establish with the firms the fact that we were interested in all kinds of training, including manufacturing/craft and technical training. Before the close of the study we had, in fact, revised our introductions in order to signal more clearly our generic interest. Even then we had difficulty establishing contact with what proved, more often than not, to be the best organized, and frequently the largest, training investment within the firm--sales/customer service training. Indeed one of our principal findings is simply that firms that use college-educated sales representatives to sell complex products to other firms, rather than to the general public, have established equally complex and expensive sales/customer service training programs wholly separate from the principal education and training function of the firm. One of the real questions senior executives within firms ought to ask themselves is simply, "What can the organization and functioning of my sales/customer service training program contribute to other more general training programs within the firm?"

Our second footnote regarding the 1970s' tilt toward management training and development is that there are some tentative signs that the cycle is about to change again. We believe that when the Current Population Survey for May 1984 becomes available (sometime in late 1985), revealing the new reports on incidence of training, it may show a dramatic decline in the probability of an individual employee receiving training by his or her firm. In the two heavy manufacturing firms in our study, however, there were clear signs of a shift in future training toward manufacturing/craft training, particularly training oriented towards the skilled craftsmen responsible for maintaining the new technologies being introduced into the manufacturing process. If the past is repeated once more, then American firms in the late 1980s will increase their overall investment in training as their employment levels increase, but with new emphasis on manufacturing/craft training and the teaching of new technical skills.

It is this general state of confusion and uncertainty that makes it inordinately difficult to provide any broad-based description of how and why American firms invest in the human capital of their employees. The problem is not just that we lack research literature to help frame our judgments, nor that the firms themselves have not treated training and education as a consistent expenditure item.

Neither is it simply that most public commentators have misunderstood the shift in training's scale and scope, nor, finally, that some of the most extensive training programs are not even recognized as such by senior executives within the firm. Rather, it is the combination of these factors, the interplay between and among them, that has made the picture so confusing. We think we understand in broad terms how training works in the twenty corporations in our study, which, we had reason to believe, were convinced of the importance of training and education. We knew before we started that our limited resources would make generalization within the very large firms necessarily tentative. Still, we come away believing that we have been able to describe the general dynamics of the problems trainers face and the successes they have achieved. To make this information useful to policy makers, however, we need a broader framework or overview within which to understand firm-specific behavior. We are caught, then, in a well-known conundrum. To understand what we have learned, we must imagine how the larger universe, from which we have drawn our sample, looks. We could, of course, have presented ethnographic descriptions of our twenty firms, developing for each a separate framework drawn from the culture of the firm itself. We have chosen, instead, to sketch in the broader overview or framework, drawing, where appropriate, on our understanding of how firms generally behave. Then, when possible, we have extracted from the behavior of the firms we studied those commonalities that we think may be broadly characteristic of how firms organize their investments in human capital.

In the next chapter, "Toward a Training Perspective," we begin to examine the role of firm-supplied training particularly in relation to education, demographics, and technology. There we present our most general findings--a set of propositions regarding three basic issues: the question of who pays for training; the scope and organization of training; and training as a function of economic growth and public regulation.

Chapter III, "Skills and Signals," provides a system for classifying training functions in terms of three dimensions: who "owns" the training program, that is, its location; its basic content, or domain; and its focus, in terms of skills orientation, "signals," and scope. This formal classification system in turn provides the framework for the presentation of examples throughout the next three chapters.

In Chapter IV, "Careers and Territories," we begin by exploring the diversity that characterizes training as activity and profession, in terms of its organization, its history, and its tasks. Our focus is on the tension between in-house trainers with firm-based careers and independent vendors, as well as on the growing divergence of organizational development and instructional design as conceptual underpinnings of the training discipline and profession.

In Chapter V, "Service Versus Investment," we ask why budgets matter so little in the organization of planning for training within major firms. Through vignettes and case descriptions, this chapter focuses on the dominant pattern of financing training as a support or service function rather than as a direct investment in a firm's human capital.

Chapter VI, "Toward a Training Inventory," then provides a four-page training inventory, designed for the use of firms in assessing and accounting for their training functions. This chapter provides sample cases and summarizes the rationale behind the inventory's construction.

Chapter VII, "Training Suppliers," details features of the private-sector training market that have emerged in response to the demands of firm-supplied training. A final note, "But Not in Pago Pago," describes our rationale for choosing a sample of firms, indicating the types of firms selected and explaining our investigative and analytic methodology.

CHAPTER II

TOWARD A TRAINING PERSPECTIVE

There are two propositions that explain the role of firm-supplied training. The first claims that most training is fundamentally remedial. The point that industry leaders like Robert Holland are making with increasing urgency is that, out of necessity, firms are diverting scarce resources to training--making right what the schools and others have made wrong. Among some economists there is a parallel suspicion that much of the economy's sluggishness derives from skill shortages and resulting labor market imbalances: too many unemployed and underemployed workers with the wrong skills; too many critically important jobs remaining vacant for lack of technically skilled workers.

The second proposition holds that firm-supplied training is primarily a measure of economic activity. A firm is most likely to make a discretionary investment in skills-training when it introduces a new product, changes a production process or adopts new standards of practice. Because training is a response to change, it is directed primarily at a firm's most experienced and skilled workers.

Is firm-supplied training a response to basic skill shortages? Our tentative answer, based on the experience of the twenty firms participating in our study, is "no."

Certainly none of these firms reported facing skill shortages. The fact that we conducted most of our study during a period (1981-1983) of adamantly high unemployment no doubt colored our findings. Still, managers across the spectrum of the twenty firms reported that first-time workers today enter the labor market with equal or better technical skills than those who entered a decade ago. Engineering skills in general, and computer science skills in particular, were cited most often as being of a higher caliber today. These expressions of satisfaction were matched or outweighed by complaints--the most often-voiced concerning the erosion of communication skills: basic writing, speaking, and the ability to organize and present ideas clearly and succinctly. There was also concern about the comportment of young workers, often expressed by managers in terms of the kinds of youths they "aren't hiring," or in praise of the military's ability to teach the importance of performing tasks well and on time. The most biting comments were in reference to newly minted MBAs, who were seen as lacking humility--wanting to run their firms right away.

It is important to note that the twenty firms we examined are reputed to be good places to work, and often have the pick of job applicants even when new jobs are plentiful. In part, they are considered desirable because they offer technical training to first-time workers--but that is our basic point. These firms do not invest in educating and training workers who are particularly lacking in skills. On the contrary, they invest in those who have demonstrated ability to utilize improved skills to benefit the firm.

The incidence of training, as reported through the Current Population Surveys (CPS), suggests that this pattern of providing training to the most skilled and best educated employees is characteristic of firms across the nation. Our analysis of the CPS data led us to conclude that college graduates were more than twice as likely as high school graduates to receive additional training from their private employers. Nearly one-in-ten employees with a professional or technical occupation received employer-provided training, as did one-in-seventeen supervisors, and one-in-twenty craftsmen. Only slightly more than one-in-fifty of the remaining workers reported receiving formal training from their private employers.

There is an equally important relationship between the age structure of the workforce and the distribution of training. The most frequently trained workers were between the ages of 25 and 34, suggesting that firms in general make substantial investments in employees after their education is complete or they have demonstrated maturity within the firm. Young workers--between the ages of 17 and 24--received less than half the amount of training given workers between the ages of 25 and 34. The only workers to receive less training than these young workers were those who were 55 years old or above. Ironically, just as business leaders were publicly becoming more and more concerned by what they saw as a deterioration in the quality of the work force, training opportunities for prime-age and middle-aged employees were increasing significantly faster than those for younger employees.

In part, this paradox is a product of America's "baby boom" and its impact on the structure of the labor market. Between 1950 and 1960, the number of youths in the United States grew from about 41 million to about 57 million or, in percentage terms, from 27 to 33 percent of the population. These youths began entering the labor market in large numbers in the late 1960s, and by 1978 nearly one out of every four privately employed Americans was younger than twenty-five. Where did these young employees go? The abundant supply of new, less skilled employees caused a substantial decline in the ratio of primary jobs (which require specific training and offer internal promotion opportunities, career growth, and security) to secondary jobs (which are lower-paying, demand less training, and offer fewer opportunities for enrichment and advancement). While the economy made short-run adjustments to accommodate the new demographic reality, the jobs created for these new workers did not provide satisfactory careers and long-run stability. Yet as long as these workers were young, in the seventeen to twenty-four year old bracket, they accepted the transitory nature of their jobs. Most of them entered the labor force with lower skill levels, a fact often overlooked in aggregate estimates of average productivity, and accepted employment in firms that offered little further training and advancement.

If demographic statistics are relatively simple to measure, they are also relentlessly biological: young people get older. As we move through the 1980s and into the 1990s, the swollen ranks of the "youth labor market" become the overcrowded "prime-age" labor supply. The number of twenty-five to thirty-four year olds in the United States jumped from about 25 million in 1970 to over 37 million in 1980, and will continue to expand until the mid-1990s. It is to be expected that between the ages of twenty-five and forty, people have greater need for security, specific training, and advancement in their work than when they were younger. The nation can expect, therefore, that as the "baby boom" cohort matures, its members will increasingly seek jobs with promotion ladders, good wages, benefits packages, and opportunities for personal growth, including training.

At the same time, over the next two decades, the economy may actually face a shortage of first-time workers. For what followed the "baby boom" of the 1940s and 1950s was the "baby bust" of the 1960s and 1970s. In 1980, youths aged seventeen or less accounted for just 28.0 percent of the United States population, whereas a decade earlier they accounted for more than 34.1 percent. If the economy were to grow at even a modest rate over the next decade, the result could be a substantial inversion of those demographic and economic forces which, in the 1970s, spawned so many service enterprises whose profitability depended on minimized wages, training costs, and capital investment. In the 1980s and 1990s, not only will the 1970s' "young workers" become increasingly persistent in their search for primary jobs, but the relative shortage of new first-time workers may drive their wages up. Thus, if all other factors remain equal, it will be in the firms' interest to invest more both in training and in labor-saving technologies.

We suspect, however, that other factors cannot be held constant. The spanner in the works, of course, is technological change: its speed, and, perhaps even more important, its direction. One of the most outspoken commentators on these trends is Peter Drucker, who has argued that the American labor force is in a period of fundamental transistion. Citing the revolution in agricultural labor markets--fewer people producing more output through the application of mechanical and chemical technology--Drucker has argued that a similar transformation is occurring among manufacturing jobs. Fewer workers, using more advanced technology, are producing more goods, at less relative cost. If few observers share Drucker's vision of America largely shorn of its manufacturing jobs, most do accept the notion that the content of those jobs will change. Indeed what technology is changing most is the content, organization, and even the purpose of work itself.

In the 1950s, John Diebold wrote a slim volume predicting how automation, a word he coined, would recast the production process, both changing and enhancing man's relation to his means of producing wealth. Widely read and animatedly discussed, Diebold's essay posed now critical questions.

> Where does the responsibility lie for training workers whose skills have been surpassed by machines? Will labor unions demand more government control of business and a more important role in politics as automation progresses? What changes will occur in our cities as industry moves to less populated areas? Just how much will automation affect plant locations?
>
> Although automation will result in more efficient use of our physical plant--for example, the use of capital equipment twenty-four hours rather than eight hours a day--our need for power and natural resources will continue to increase during the next generation. What steps must we take to replenish what we draw from nature?

Read in light of the new technologies made possible by the silicon chip, Diebold's predictions appear remarkably prescient, but we need to be reminded that fundamental transformations are seldom recognized as such by those most directly affected by them.

In their early stages, the new technologies require a highly skilled work force, one capable of understanding the new techniques and applying them to old problems, as well as extending, documenting, and finally maintaining the new production processes. Certainly this demand for highly skilled technicians has characterized the spread of technologies based on the silicon chip. Even in the midst of the 1981-1983 recession, the demand for skilled computer professionals was significantly greater than the supply being produced by the nation's schools and colleges, even when that supply was being augmented by a substantial number of firm-supplied training programs.

Sometimes the new technology develops complex tasks to replace simple ones. The assignment of a technician at a word-processor is far more complex than that of a secretary at a typewriter. However, a firm's payoff in making this substitution is in the potential reduction of the need for secretaries and, ultimately, for equipment. For the most part, however, technology makes complex jobs simpler. For example, the first service engineers--responsible for repairing the new generation of electronic copiers, cash registers, and computers--needed a broad understanding of how these new systems worked in order to troubleshoot machine failures. However, such equipment is increasingly being manufactured with a modular design long used by the military. When a failure occurs, there is an operator who can activate a diagnostic routine that automatically identifies the likely source of trouble. The service engineer's task is limited to replacing one modular component with another and shipping the defective component back to a general service facility, probably to be discarded. The job of Service Engineer is still essential, requiring discipline and good comportment, and can have significant rewards within the firm; but there is little doubt that it no longer carries a true engineering dimension. As this job becomes less complex, firms are enabled to reduce either the number of service engineers they employ or the wage levels needed to attract employees with sufficient expertise to perform the required task.

Even jobs that originated with the new technology can be simplified, thus reducing the need for specialized skills and training. Currently, the demand for computer software programmers is being reduced since the tasks programmers perform are becoming more amenable to generalized solutions. This prepackaging of the programmer's art is particularly apparent in the use of micro-computers. In programming for business applications, software packages like VISICALC and LOTUS 1-2-3, along with more complex packages like dBase 2, make it unnecessary for programmers to understand hardware architecture or to design separate data structures for each application--two skills that distinguish a programmer-analyst from a mere programmer. An investment in a software program, ordinarily costing less than a thousand dollars, substitutes for the extended training of programmer analysts who would be able to design efficient data structures for a variety of hardware configurations.

When we turn to the world of manufacturing, the new technologies' potential for changing the organization of work and the distribution of critical skills becomes even more apparent. The following vignette, drawn from our analysis of training programs, best suggests the scope of this transformation.

Two major manufacturing firms in our sample employ more than a quarter of a million workers each in the continental United States. The larger of the two, like many such enterprises, was severely affected by the 1981-83 recession. This was the firm, alluded to in Chapter I, that as sales plummeted and reductions in the work force approached 20 percent, declared a moratorium on all current training. This firm also converted many of its technical trainers, like Bob W., to other tasks. Yet, despite the severity of the recession, the firm proceeded with the major capital expansion program that had been on the drawing board since the mid-1970s. Not having constructed a major new production facility in nearly twenty years, the firm now began the simultaneous construction of three new production plants and the restructuring and total rebuilding of one older plant.

Because these projects represent major capital investments in new manufacturing technology, they offer a special opportunity to examine skill imbalances as well as ways that technological change can affect the organization of work and the acquisition and maintenance of technical skills. In brief sketch, the firm expects to recoup and profit from its investment in the new plants, first by increasing quality control (doing it right the first time), and second, by reducing the total workforce necessary to maintain the firm's manufacturing volume. Even while the number of production workers is being reduced, however, the number of skilled craftsmen, particularly those with maintenance responsibilities, will substantially increase.

The reduction of overall labor costs and the shift toward skilled maintenance craftsmen, brought about by the introduction of robotics, only partially reflect the impact of automation on the organization of work in manufacturing firms. The real import of this vignette lies in the extensive investment made by the firm to teach its maintenance craftsmen the new skills needed to perform their increasingly complex tasks. Recognizing the importance of an efficient start-up for the new plants, the firm brought its engineering staffs on board more than two years in advance of actual production. In addition to assisting with the design and the lay-out of the assembly lines themselves, the engineers' assignment was to plan the training program needed for the plants' maintenance staffs and other skilled craftsmen.

Working within the framework of the firm's collective bargaining agreement, the maintenance staffs for the new plants were to be drawn almost exclusively from older plants scheduled for curtailment or closing. While some screening, based on skills and past performance, was possible, the new plants' maintenance staff would be constituted largely of workers with twenty or more years of experience within the firm. The first questions the training plan had to address, then, centered on the state of the skills these craftsmen would bring with them and the work rules which had defined their task in the older plants. The training staff found that this group was remarkably adept at repairing twenty-year-old equipment. Each knew his specialty and could, with more than adequate efficiency, perform the tasks that had been required of him. At the same time, these workers had almost no experience with robotics and the integrated systems that would control the manufacturing processes in the new plants. The first decision was to organize a major remedial training program to teach highly skilled workers new techniques for troubleshooting, and then repairing, complex integrated manufacturing systems. In addition, because of the very fact of the system's integration, the maintenance craftsmen had to be trained in several crafts in order to maintain the system efficiently and effectively. The new maintenance craftsmen needed to be familiar with electronics, welding, hydraulics, elementary carpentry, and so on. Here then was an example of how the introduction of the new technologies into the manufacturing process not only increased the importance of the skilled craftsman at the expense of the production worker, but also required the transformation of the craftsman into a generalist familiar with the integrated systems that comprised the plants' assembly lines.

Because of the careful analysis performed by this training team, we also have a better idea of just how expensive this transformation of a skilled labor force can be. The plant itself represented a $400 million-plus investment for the firm. The training staff estimates that the training cost for skilled craftsmen alone will be nearly $4 million in the first year--but that is just the tip of the iceberg. To accomplish the training schedule, the maintenance superintendent and his staff estimate that thirty weeks of technical training will be required per worker prior to the commencement of production. When this labor cost is factored in, the full cost of remedial, as well as specialized, training in the maintenance crafts will come to more than $25 million in the first year for the 400 craftsmen, representing less than 25 percent of the plants' total workforce.

Service industries also face major training tasks. There is general agreement that the service sector will generate most of the new jobs in the late 1980s and beyond. A preponderance of those positions will probably require rather unsophisticated skills. Even here, however, we think some caution is in order. One of the boons of the 1980s will be the smaller number of first-time workers entering the labor market. This welcome pause from the relentless pressure for new jobs created by the "baby-boom" could actually result in a labor shortage, yielding higher wages and increased training opportunities for youths just entering the labor market. This process of bidding-up the value of the labor of first-time workers will further accelerate if the military continues to rely on a volunteer army and if colleges and universities maintain their share of the traditional college-aged population.

Our concern for the moment, however, is not with simple, entry level jobs in the service sector, but rather with those more complex, highly skilled occupations that have also characterized the growth of the service sector over the last decade. Here, no single service industry is more emblematic of technologically induced change than that of banking. Banks, with their use of high speed computers linked by complex telecommunication networks, have given new meaning to Franklin's maxim, "Time is money." Once, banks earned their profits largely by holding on to someone else's money, however briefly. The services banks provided were largely free--ways of assisting regular depositors and borrowers. Today, the electronic transfer of funds can reduce to micro-seconds the time a bank holds a customer's funds prior to transfer. Formerly free services have become an important part of the bank's product mix; the fees they earn contribute significantly to the bank's profitability. Because banking remains labor-intensive--with often expensive labor at that--the building of the industry's service base has meant fundamental changes in how most banks train their employees and organize their staffs. In the large, money-center banks, account-executives have largely become sophisticated salesmen, teaching customers how to take advantage of the range of services the bank's computerized networks have spawned. Men reared in the tradition of gentleman banking have to be taught how electronic banking systems work, because of their increasing use by the bank's business customers. Even more jarring to these banks' traditional practices has been the necessity to build increasingly extensive computer services staffs, comprising technical professionals with little knowledge of, or even interest in, how banks work or make their money. What these professionals want, with an almost insatiable appetite, is more technical training; and banks, which correctly believe they offer their employees more training than most industries, have found themselves developing whole new training programs and staffs in order to attract and retain skilled computer programmers, systems analysts, and network designers.

The use of electronic networks to manage and transfer monies is having an equally pervasive effect on the banks' customers. One of our more fascinating interviews was with the "cash manager" of one of the nation's largest retail chains. Though he had earned an MBA, it quickly became clear that he had been primarily trained in engineering and systems analysis, both as a student at a midwestern college and throughout six years of service to the United States Air Force. He contributed to the firm the automation of the daily management of cash, which now allows each store, every night, to electronically report its cash-on-hand and cash needs for the next day. Using an automated link to the firm's twelve leading banks, a cash-management algorithm first transfers funds from one of the firm's accounts to another, and then, after comparing short-term rates among the twelve leading banks, secures the financing the firm will require the next day. A once-elegant bargaining process has been transformed into a complex set of electronic transfers managed by an electronic network. The manager of this system, like an increasing number of the banking technicians with whom he deals, actually has little feel for the business or for the management of money.

In some service industries, however, electronic systems have, in fact, been integrated with the business of the firm, leading to substantial investment in the retraining of a largely professional workforce. A significant contribution to the growth of consulting practices within big accounting firms is their ability to advise clients on how to manage the effects of electronic automation. In these firms, the business of the business has, in part, become the rendering of consultation to firms dealing with massive amounts of information, and an increasing number of those admitted to firm partnerships have experience as data processing consultants. In the world of accounting, as in electronics manufacturing, sampling has replaced inspection as the principal means of testing accuracy. In the 1970s the development of automated accounting systems led to a fundamental rewriting of auditing standards. Audits were no longer concentrating on ending balances of accounts, but rather on a monitoring of the flow of transactions recorded by the accounting system. They now involve a greater sampling of both control processes and results, not unlike the statistical process control that now lies at the core of manufacturing quality control. In accounting firms this change in practice has required the retraining of the firm's most experienced, as well as expensive, professionals. In more than one big accounting firm, the profitability of an engagement depends principally on the engagement partner's being comfortable enough with the new methodologies to truly abandon the old.

Thus far, our examples of how the new technologies are changing the organization of work, and of how and why firms train their employees, have been drawn from experiences of large firms with established reputations for investing in human capital. It is commonly assumed, however, that in the 1980s and 1990s most new jobs, regardless of their demand for technical competencies, will be created by firms employing less than five hundred workers. How will smaller firms, unable to afford major training programs of their own, acquire the skilled personnel they need to grow? The answer is that, as in the past, smaller firms will harvest the training efforts of larger, better capitalized firms.

One of our most surprising findings was that, in firm after firm, the best organized and well-financed training programs belonged to the sales organization. Trainers for these programs were frequently drawn from the ranks of the firm's most successful salesmen. In many of these firms the management of sales training was a prerequisite to more senior management positions. Sales training programs were likely to have their own facilities, to budget the salaries of trainees, and to test and grade the trainee's performance. There was often a rigor, as well as a sense of urgency, attached to sales training, which was the envy of trainers in most other parts of the firm.

On closer inspection, however, we discovered that the art of selling was seldom the principal subject of the sales training courses. Rather, the instructors taught principally product knowledge. The more complex the product, the more likely it was that the customer was another firm; the more education the sales-trainee had before joining the firm, the larger and more expensive was the training course in which he was placed. The model for such product-knowledge training remains the pharmaceutical industry in which the leading firms' sales forces played major roles in teaching the nation's physicians how and when to use whole new families of pharmaceutical products. The rate at which these innovations were utilized by the nation's health-care system suggests something of the potential of producing firms both for creating new technologies and providing the training necessary for their widespread adoption.

Manufacturers of the new technologies have learned this lesson well. In these firms, sales/customer service training develops professional skills in teaching customers how to utilize automated processes: what is appropriate, at what cost, with what savings in labor--taking into account the necessary training of key personnel. Increasingly, to buy equipment implies purchasing training from the manufacturing firm. Hence, the availability of technical training is not so much a function of the size of the purchasing firm as the size of the vending firm. It may be, in fact, that the need to train users will preclude most smaller manufacturing firms from vending equipment directly to producers. Instead, the small manufacturer will make components which large firms will then assemble into packages that include training in utilizing the products.

Larger firms also contribute more directly to the nation's supply of skilled professionals, technicians, and craftsmen. By common consent, the nation's largest, most sophisticated training programs have been run by IBM and

AT&T (before divestiture). Alumni of these firms have played singular roles both in inventing and bringing to market many of the innovations which we collectively call the new technologies. IBM and AT&T have contributed to the creation of their own markets by spending more on training than their own immediate needs dictate. The more complex the technology, the greater the need for a pool of engineers, technicians, and operators upon whose knowledge smaller firms can draw in order to launch new products that, in turn, increase the utilization of the technology of the initiating firm.

Yet it is not just giants like IBM and AT&T that create business for themselves by supplying the labor market with skilled technicians. One mid-sized firm that participated in our study--with 2,000 employees and annual sales of just over $200,000,000--supplied automated data and accounting services to clients not wishing to operate their own computer mainframes. The firm supplied terminals networked to their computer facility, which ran the special software packages needed by the client. The firm owes its 20 percent annual growth rate to its adeptness at designing new applications, maintaining a relatively trouble-free network, and teaching its clients how best to use its services. Pivotal in the operation is the field representative who manages the introduction of the service, making sure the new client understands how the service works. Despite an initial stint in the classroom, most of the field engineer's own training is one of baptism by fire. In this firm, fond of military metaphors, most field engineers are said to receive battlefield commissions. Ordinarily, new recruits are college graduates with some familiarity with computer systems. First assignments are on someone else's engagement--a kind of apprenticeship in which the new field engineer learns the vagaries of life on the road as well as how to sort out the client's often undocumented procedures for conversion to the firm's automated systems. By their third year, field engineers are running teams of their own. By their fifth year, if not sooner, most field engineers are ready for a change. A few will take headquarter assignments, either in new application design and testing, or in client training. A few others will trade their experience and insiders' knowledge for increased responsibility and perhaps an equity holding in one of the new, smaller firms which the computer services industry spawns annually. Most field engineers, however, will go to work for a client, often as operations managers. The benefits to the firm from this outward flow of experienced personnel are substantial. In essence, a valued employee has become an even more valued customer, one likely to buy new services and be an efficient and, for the firm, highly profitable user of services. Just as important, the firm can continue to attract young, energetic recruits to its field engineer corps--men and women eager to trade long hours and lots of travel for the chance to learn how one of the nation's fastest growing service industries works.

Banks and large accounting firms play much the same role. Already, money-center banks are responsible for training significant numbers of regional bank personnel. The big eight accounting firms supply trained personnel to their corporate clients, as well as to smaller accounting and consulting firms--a fact that explains the size and complexity of their technical training programs as well as their attraction to new business school graduates looking for advanced training and practical experience.

The federal government can also play a critical, though similarly indirect, role in supplying firms with skilled personnel. The firm in our study with the most highly trained work force was also the smallest, with just over forty full-time employees. This Boston firm, whose business is developing commercial applications from the advanced techniques of genetic engineering, does no training of its own; rather it owes its very existence to the ability of the firm's founders to harvest the surplus of trained personnel from the Harvard and MIT labs. It helps, of course, that the founders themselves are drawn principally from these two institutions. The full-time research scientists employed by the firm are former students and post-docs who preferred staying within the Boston-Cambridge area to accepting traditional academic appointments elsewhere. Even the firm's lab technicians learned their craft in Harvard or MIT labs, and then joined the firm, where they earned on average $4000 per year more than they had at the universities. What is now happening around Boston in genetic engineering is reminiscent of the era of the creation of the high tech electronics industry in the same area a generation ago: there is again a concentration of scientists doing basic research made possible largely by federal grants. What the new genetic engineering firms in the areas harvest is a federal investment in new knowledge and training as well as in experienced personnel.

The federal government's second, largely indirect contribution to the nation's training network is in the role the military plays in basic skills training. We were told by both managers and trainers everywhere we interviewed, "It's best to hire first-time workers with military experience." Men and women discharged from the military with a skill-rating and a clean record can be expected to know how to work, to show up on time, and to be task-oriented. But military service also bestows genuine skills-training, developing competencies which can, in fact, lead to jobs. Military service remains the classic example of shared training costs. In return for somewhat lower pay, the military teaches new recruits basic and job-specific skills along with the personal discipline and comportment required for productive work. The federal government pays the overhead that training generates as part of the cost of military readiness. The firms that pay many of the taxes the military spends, receive, among other benefits, a supply of skilled labor.

What firms do not want is to play the military's role. We found no enthusiasm for the idea that private firms should become principal training sites, even if public agencies were to subsidize the trainee's wages and absorb the cost of formal instruction. Rather, we found almost everywhere a deep-seated skepticism of the government's ability to mount non-military training programs that work. Criticisms of the CETA program, while based primarily on what interviewees had heard rather than experienced, stressed the same theme: training works only where there is a specific task that really needs performing; military training is effective because there really is a job to be done.

* * * *

Thus far we have developed general themes as illustrated by specific examples. We now want to sharpen our focus by presenting an extended set of propositions, which we intend to document. Our propositions cluster around three topics: 1) Who pays for training? 2) The scope and organization of training, and 3) Training as a function of economic growth and public regulation.

WHO PAYS FOR TRAINING?

The answer to this question, as everyone knows, is, "those who benefit, pay." We found no evidence to counter this theory. Thus, our first proposition is simply,

- As principal beneficiary, the firm pays for, and ordinarily provides, task, job, and firm-specific training.

Yet among the twenty firms in our study, much of the cost of general training was also paid for by the firm. Hence,

- When it receives sufficient indirect benefits, the provision of broad, gauged training to key employees is generally paid for by the firm.

The provision of general training represents a set of special situations appending the rule that holds that employees receiving marketable skills ought to bear most of the cost of their training. We have derived six such situations from our study of firm practices.

(1) A firm will bear the cost of general training when as a matter of personnel policy the firm does not recruit experienced outsiders to fill vacancies within the promotional ladder.

For more than half the firms participating in our study, full employment was a matter of policy. While they would dismiss an employee for unsatisfactory performance, particularly during probationary periods, the explicit promise was that satisfactory performance guaranteed both employment and promotion. Until the 1981 recession, all these full-employment firms had honored that promise and reported benefits from low quit-rates, high morale and increased efficiency, which more than offset the training cost associated with teaching current employees critical skills.

(2) A firm pays for general training when so mandated by a collective bargaining agreement.

It is significant that, in more than half of the firms participating in our study, either none, or a relatively small percentage of, their employees were in organized bargaining units. In the two largest manufacturing firms, however, there were strong collective bargaining agreements that mandated general training. These agreements involved technical training for workers assigned to new production processes, and the teaching of new job skills to workers displaced either by technological change or by the firm's loss of market share to a competitor. A classical argument can be made that it is, in fact, the workforce that pays for this training, since it absorbs resources the firm might otherwise have made available for increased wages for continuing employees. It is important to note, however, that management interviewees, no matter how candid they might be on other subjects, never adopted this line of argument. Indeed, this provision of general training was most commonly explained as being the firm's partial contribution to matching the union's "give back" on wages and work rules.

(3) A firm bears the cost of general training when the training program itself provides a critical communication channel across the firm.

It is the large firm that has the greatest need to establish criss-crossing communication channels and, not coincidentally, which has made the most sustained investment in employer-provided training. While much of this communication capability is associated with task- and firm-specific training, general technical training can help coordinate the design, production, and selling of new products, and the scheduling of projects so that they do not compete for the firm's most scarce labor skills.

Here a concrete example best illustrates the indirect benefits available to a firm even as it provides its technical employees fungible skills.

For many years the most over-subscribed technical training course in one large firm participating in our study was "project management." Among other benefits, the course provided the opportunity for key staff to work on other people's problems. The success of the course depended on the ability of the instructor, ordinarily a project manager himself, to lead the class toward the diagnosis of problems plaguing active projects. Occasionally, the class came up with practical solutions to problems. More often, however, the result of the course was that the senior technical staff better understood the range of problems affecting projects, and the director of technical education developed a management memorandum detailing how procedures might be altered, and task-specific training improved, to overcome problems and conflicts.

> (4) A firm will bear the cost of general training when it is offset by new revenues or savings generated by former employees working for customers and suppliers.

One of the reasons for the popularity of the project management course was that so many of the firm's project managers were recruited by other firms. Yet even this dispersion of project managers trained by the firm returned an indirect benefit. Where project managers are employed by suppliers there is an easier, less costly integration of product design and practice and of quality control. In one of the heavy manufacturing firms in our study, there is now an explicit awareness that the firm itself will have to train the managers of its small suppliers in order to assure quality control. As we suggested earlier, similar benefits in the form of increased revenues result when a customer recruits personnel trained by the selling firm. In this case the provision of general training creates a sophisticated and efficient user of the training firm's products and services.

> (5) A firm will bear the cost of general training to retain, if only briefly, a critically important employee.

The general economic rule to which we are appending our six special situations holds that the provision of general education to employees must either increase their wages or their quit rates. In the long run, the rule holds true, but, ironically, though firms can temporarily retain essential employees by providing additional training, that training increases the probability that the firm will lose the employee in the long run. Nowhere is this paradox more evident than in the training that firms supply their computer support groups. Traditionally, computer projects are assigned to teams that are supposed to blend skills, experience, and levels of responsibility. As most project managers will tell you, however, in any team there will be one, at most two, critical members whose departure will substantially set back the project's schedule--precisely what no manager can afford. The first strategy used by project managers is to hide these team members, particularly from other managers within the firm. The second most popular strategy is to encourage key members to enroll in a technical training course, preferably one that will last longer than the current project. It matters little whether the skills these crucial employees learn are of actual use to the firm. One senior computer group executive told us, "We train three times the number of people in database management than we need. They stick around just long enough to get their training, but in the meantime we get them to complete their projects."

> (6) A firm will bear the cost of general training when the lack of competition restricts the free functioning of the labor market.

On the whole we found that the most extensive investments in general training either were made by firms with particularly advanced technologies or few competitors or, as was often the case, both. In these cases, the firm could provide fungible skills training and expect only a marginal loss of trained personnel. The clearest example we found was in a firm producing highly complex, state-of-the-art engines. World-wide there were just three other firms with the capacity to design and then manufacture these products, only one of which was in the United States. Significantly, the competition for new contracts between suppliers was so intense that there was little likelihood that one firm would ever fully trust an engineer poached from the other. Consequently each firm, in recruiting new engineers, could make lavish promises of future training--and keep them. Whenever a firm dominates the development of a particular technology it can probably train its research staff without increasing the quit rates. Put simply, only these firms offer the most highly skilled engineers and scientists that unique opportunity to lead their fields. As one key manager told us, "If they want to work on these problems, they have to stay with us."

We understand that in each of these special situations a part of the cost of general training providing marketable skills must be borne by the trainee, if only in terms of opportunity costs. What we did not find was a direct link between salary levels and the receipt of firm-supplied general training. Uniformly, those firms participating in our study that had extensive technical training programs for first-time workers--principally in banking, accounting, consulting, engineering, and electronics, including software development--reported that they offered better-than-average salaries to go along with their greater training opportunities. To the extent that we could verify these perceptions, we did so, leading to our general conclusion that

- For firms offering substantial general training, the indirect return to the firm in terms of increased efficiency, however specified, must substitute for most of the employees' share of the cost of their general training.

THE SCOPE AND ORGANIZATION OF TRAINING

To focus on the question of who pays for general training is, however, to overemphasize its importance. The simple truth is

- The great proponderance of firm-supplied training is task-, job-, or firm-specific.

Most training, in other words, does not provide fungible skills, does not increase the employee's value in the labor market, and hence does not increase the quit rate.

Most training is job- and task-specific, precisely because

- Training within the firm is largely a tactical response to a current problem.

Though most training managers wish it were otherwise, training seldom contributes directly to the firm's strategic planning. The general pattern is for the firm to make a decision--for example, to introduce new machinery, to develop a new product line, or to change practices or a manufacturing process--and then, after the fact, ask the relevant training group to design and implement the necessary training program. This assumption that training would provide the means to implement a decision already made characterizes each of the major training investments we discussed earlier: the design and construction of the new automated assembly plant; the decision to change audit practices in the large accounting firm; and the electronics firm's decision to shift to the manufacture of electronic systems.

Trainers themselves explain the fact that training is a tactic rather than a strategy by noting that a firm "trains to demand." This same focus on training as a problem-solver helps explain why firms' trainers have increasingly defined their task as being to teach new competencies to key employees. Perhaps our most revealing interview with a trainer came late in the study, when we talked with the head of technical training for the largest manufacturing firm in our study. A twenty-five year veteran of industrial training and senior statesman within ASTD, he laughed at our seeming naiveté in asking why his firm invested in training, and then observed, "Bob, you've got to understand that in this business the trainer is like the pharmacist. We don't diagnose the illness, we just the fill the prescription."

The fact that in most firms training is largely reactive, means that

- The management and organization of training within the firm largely derives from the functional and structural organization of the firm itself.

It is, in other words, perfectly natural to find separate training organizations for each of the principal functions within a firm--sales, management, technical, employee development, manufacturing/craft, and clerical--as well as separate organizations within these areas at the corporate, division and plant levels. The size of any one component of the training system will be a function of the size and complexity of the problems it is given to solve. Moreover, in this environment trainers are more likely to see themselves as consultants to management--definers of problems--rather than as instructors or operators of schools (though, in fact, some firms in our study do operate schools in which the manager portrayed himself to us as a kind of quasi-dean). Trainers frequently reported that what they provided most was service in terms of specifying a problem, designing a training program to solve it, and finally, purchasing instructional materials and personnel, usually through a vendor, to teach workers the skills needed to alleviate the problem.

The cumulative effect of these organizational patterns is the dispersal of training initiative to the trainer:

- Few firms have well stated policies defining either the style or the scope of firm-supplied training.

The largest training programs we encountered almost inevitably had at their center a would-be entrepreneur. Most trainers accepted, though not always gladly, the proposition that senior management did not understand much about what it took to make a good training program. Few trainers reported that senior managers took an active interest in specific courses or curriculum design. What the successful trainer in a large firm learns quickly is

- It is the trainer's job to sell senior management a particular training course at a given level of expense.

Because training programs so often become the personnel extension of the key training manager, and are greatly influenced by his or her relationship with senior management,

- Training programs, even in large firms with established training traditions, can change their style and focus easily.

TRAINING AS A FUNCTION OF ECONOMIC GROWTH

There is yet a third and final vantage point from which to view firm-supplied training, which affords a more direct link between the changing nature of work and the scale and function of firm-supplied education. Thirty years ago, Diebold observed that economic growth, along with increased productivity, would minimize labor dislocations arising from the introduction of a new technology. What neither Diebold nor others imagined, however, was that automation would take place in a decade--1975 to 1985--in which productivity growth would slow to zero and economic growth would fluctuate widely, leading each time to deeper swings in the business cycle. But in actuality this occurred, and as a result that decade closed with the worst recession in fifty years--more than 10 percent of the active workforce unemployed, more discouraged workers than ever before, and, in large parts of the country, a growing sense that economic development was a thing of the past.

It was in this climate of economic uncertainty that public officials and their policy-makers emphasized firm-supplied training. If much of the economic slowdown was in fact a function of skill shortages, then perhaps job training, by increasing the supply of skilled workers, could help rekindle economic growth. Could not tax and other incentives encourage a firm to invest in human capital just as similar incentives had already encouraged investment in new plants and equipment?

For this to happen it would be necessary for investments in human capital to work at least in parallel with investments in physical capital. In fact, they work serially. Our conclusion is that

- Training investments provide leverage, rather than spur, economic growth.

In general,

- The scale of a firm's training program will be a function of the rate at which it acquires new technologies or products.

What private sector investment in training is unlikely to effect alone is a significant increase in employment. Because, to the firms, a principal benefit of effective training is reduced labor costs,

- In the absence of economic growth, private sector investments in skills training are likely to lead to reduced levels of employment and increasing wage disparities between high-skilled good jobs and lower skilled bad jobs.

Finally, we note that because training is decentralized, as well as task-oriented, its very diffusion across a firm makes it difficult to regulate either internally or externally. Over the next decade, firms that invest in training will face two management tasks:

(1) The regularization of budget and accounting procedures for identifying the full cost of training, including the trainee's salary and the proper share of internal overhead that training departments occasion.

(2) Building stronger, more consistent links among separate training programs.

Our own advice to large firms, in particular, is that in recognizing training as an activity capable of common definition, firms might take their research and development functions as ultimate models. Firms might even consider having training departments eventually use the same reporting lines that research and development uses. Until training becomes a consistently defined function, it will not be possible to design either incentives or regulations capable of changing the scale or the nature of the training being offered. This observation is as pertinent for the CEO of a large firm seeking to change training practices as it is for the federal, state, or local official seeking accelerated economic development through the stimulation of private-sector training.

CHAPTER III

SKILLS AND SIGNALS

Educational definitions imply territorial prerogative. For at least a century, education has been considered the domain of the schools. Their purpose has been to perpetuate an educated citizenry, competent in the basics. Education, as both concept and territory, has implied a hierarchy where prestige and resources have been bestowed on those schools that best exemplify the nation's quest.

With education occupying the high ground, "training" became something someone else did. Training, in contrast to education, was assumed to be narrow, task-specific and job related--in sum, a lesser activity. Training was the province of vocational-technical education, and to most, vo-tech teachers, like teachers of physical education, held minimal prestige.

There are those who still believe in these distinctions, equating education with broad issues, general skills and generalizable knowledge, while seeing training as job- and task-specific, involving application, more than acquisition, of knowledge. According to this definition, training is the business of those whose principal concern is a productive workforce, not of those whose interests lie in the perpetuation of an informed or learned society. In actuality such distinctions are of little value. There is hardly a school we know of that does not teach task skills, nor a firm that does not teach theories. Some of the firms we visited operated fully-accredited postgraduate programs, while postsecondary institutions of every stripe, including the most prestigious and research-oriented, have rushed to serve what they perceive as the growing educational needs of American corporations.

We suspect, in fact, that the persistence of the distinction between training and education is partially defensive--for at long last the firm's trainer has the upper hand. Today, traditional schools and educators are in trouble. The recent spate of national studies has confirmed what the first and best of them proclaimed loudly--titling its report A Nation at Risk: "We report to the American people that while we can take justifiable pride in what our schools and colleges have historically accomplished and contributed to the United States and the well being of its people, the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people. What was unimaginable a generation ago has begun to occur--others are matching and surpassing our educational attainments."

In this climate, firm-supplied training is seen as playing an increasingly critical role in the nation's fight to preserve its competitive edge in world markets. Trainers must succeed where educators have failed. We have already quoted Peter Drucker's aphorism, "Demand for education is actually going up not down. What is going down and fairly fast is demand for traditional education." No matter that the truth of Drucker's observation is more a function of demographics than of educational failure, it is still an accurate description of our national state of mind. Most trainers we interviewed were genuinely optimistic about the future of firm-supplied training. They worried that those responsible for running their organizations did not really understand their function. But they themselves had little doubt of its importance; they knew that doing their jobs right would make a difference to their organizations, and that the skills and knowledge they taught satisfied the needs--and wants--of their students.

Beneath the contrast of their current moods is a similarity in the basic forces affecting both schools and firms. In our schools, the rallying cry has become "back to basics," implying a need to focus less on the social skills which dominated educational innovation in the 1960s and 1970s. In calling for the "reform of our educational system in fundamental ways," and the renewal of the "Nation's commitment to schools and colleges of high quality," the National Commission on Excellence in Education went on to say, "that we have compromised this commitment is, upon reflection, hardly surprising, given the multitude of often conflicting demands that we have placed on our Nation's schools and colleges. They are routinely called on to provide solutions to personal, social, and political problems that the home and other institutions will not or cannot resolve." One of the half-dozen key steps the Commission recommended was the national use of standardized tests of achievement chronicling each student's educational progress. "The purpose of these tests would be to: (a) certify the student's credentials; (b) identify the need for remedial intervention; and (c) identify the opportunity for advanced or accelerated work."

Although trainers will be uncomfortable with the comparison, the development of firm-supplied training programs over the last two decades has followed a remarkably similar path. Beginning in the 1960s and continuing through the 1970s, the principal growth of training was in the areas of management and personal development. As the nation's schools were concentrating increasingly on the teaching of personal and humanitarian skills, training programs in the private-sector were similarly focusing on what came to be known as "human resource development." Firms everywhere

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began teaching interpersonal skills, better personal habits, prevention of alcohol and drug dependency, physical fitness, and weight control, along with a growing number of courses in "people management" and personal development. By 1983, however, one could detect a shift of emphasis. Managers of firm-supplied training, and the executives to whom they reported, spoke of the change of focus from personal development to developing formal systems of competencies--basic skills employees must master in order to promote their own careers as well as to increase their importance to their firms. The interest of training establishments in measurable competencies itself signals a turn similar to that recommended for the nation's system of schools: increased emphasis on learning sequences that stress measurable performance in well-defined basic subject areas.

We have highlighted developments common to both worlds because we believe that in order to develop new and better definitions we must recognize the educational complexity that characterizes the world of firm-supplied training. We state categorically that though such training often concentrates on applied knowledge, it is hardly limited to that. Rather, what we call "firm-supplied training" throughout this report is, and ought to be recognized as, a principal educational activity reflecting the same range of opportunities and problems faced by educational functions everywhere. Of course we would do no one a service, least of all those educators who now seek new clients for their educational products from corporations, to claim that what happens in schools is indistinguishable from what happens in firm-supplied training programs. But to use traditional definitions which assume the inherent separateness of the two enterprises would be even more misleading.

Our purpose in this chapter, then, is to develop a classification system that allows us to capture the variety of firm-supplied training programs and methods. This process will help us understand this complex realm and its true position in the nation's educational system. Again we state that in this report the term "firm-supplied training" refers to the formal educational programs supplied by private firms for their employees, and does not imply a distinct division between generic and task-specific knowledge. Our classification system is based on the assertion that a training program is best understood in terms of its location, domain, and focus.

LOCATION

We have already observed that the organization of training within a firm largely reflects the structure of the firm itself. In those that are highly centralized, responsibility for training often will be lodged at the corporate level. In more decentralized firms, and particularly complex firms that have grown significantly through merger and acquisition, responsibility for training will be more widely defused throughout the organization. Because training programs are virtually always considered part of the "business of the business," the style of any specific training program reflects the location of its sponsoring agency--or, as trainers themselves would put it, training style is a function of "who owns the training."

In this study we have recognized three levels of organizational ownership: Firm, Enterprise, and Site. In the language of most firms, training which belongs to the firm's central staff is known as "corporate training." Throughout this study we have used that term to signify the training programs which are the direct responsibility of corporate staff.

The next level is the "Enterprise," which can be a division or group within the firm, or a wholly-owned subsidiary. In firms with a strong divisional organization, there is often a well perceived tension between corporate and divisional, or Enterprise, training--"what we do and what they do."

The third level is the "Site," which can be a plant, department, office, or store. It is training at this level which is most directly owned by line-managers.

The "Firm, Enterprise, and Site" classification for training locations is illustrated in Figure 1.

DOMAIN

Training programs also vary by domain. Each functionally separate organization, at each level of a firm, creates its own training programs specifically designed to teach a particular slice of the business. In our classification system we designate eight such domains or functional areas, each reflecting a distinct aspect of the business enterprise.

Management training was found to be the broadest and most inclusive training domain within the twenty firms participating in our study. Only one, a small forty-person biotechnical firm, neither offered its own management training course nor sent key personnel to courses offered by a business school, the American Management Association, or a similar provider of management training. At its core, management training teaches basic supervisory and management skills. When more broadly cast, as was often the case in the firms participating in our study, basic supervisory training is seen as the first step in a larger curriculum of management development.

Emplovee Development most often extends the human development component of management training to the entire

Figure 1

LEVELS OF LOCATION

FIRM	ENTERPRISE	SITE
Corporate	Divisional Group Subsidiary	Plant Department Office Store

workforce. Here course offerings run the gamut from developing management potential, to managing leisure time, to developing better personal health and driving habits. Frequently managers of employee development programs are also responsible for their firm's tuition-remission programs which offset all, or a portion of, employees' elective (not specifically job-related) enrollments in college or similar educational programs.

Technical training consists of that portion of a firm's educational program most directly tied to traditional academic disciplines. Most technical training is designed for holders of B.A. or B.S. degrees, and frequently allows employees to earn credit towards advanced degrees. Most technical training is still in fields of engineering:

advanced electronics, materials, computer-assisted design, software development, production control, and project management. Increasingly, however, firms are offering technical training in the management, allocation, and control of financial resources, and in advanced as well as basic accounting, credit, cash management, financial analysis, and strategic planning. When a firm's products involve particular scientific disciplines, technical training can include advanced instruction in those. The pharmaceutical firm included in this sample, for example, offered training in new theories, applications, and techniques of genetic engineering.

Manufacturing/Craft training teaches production workers and skilled craftsmen the skills, techniques, and processes needed to build, maintain, and operate the firm's production facilities. Such training most often fits the public's image of basic "how-to" or vo-tech training. Such manufacturing/craft training ordinarily accompanies the introduction of new equipment and technologies, the opening of a new facility, and the hiring of first-time workers--although most firms in our studies expected first-time production/skilled craftsmen to come to their jobs already trained in the basics.

Clerical training, particularly for large firms whose corporate headquarters are located in or near a major metropolitan area, is becoming an increasingly important part of these firms' educational programs. Clerical training represents the largest single exception to the general rule that firms seldom provide basic job skills to first-time workers. Most major firms now presume that they must create their own trained pool of clerical and support staff by mounting often extensive training programs to teach typing, filing, basic office protocol, and management. In more than one firm we found frequent cases of production workers displaced by a new technology being retrained as secretaries and other support staff.

Sales/Customer service training, though it is often the best financed and organized educational program within a firm, remains the training activity least likely to be included within the inventory of a firm's educational programs. In sales/customer service training, relatively little effort is focused on teaching the techniques of selling or of motivating future sales staff. Instead, particularly in firms which sell technically complex products and services to other firms, most of these training resources are devoted to teaching basic product knowledge and providing the information necessary for the technical support of clients. As we suggested earlier, such training represents a key investment by a firm in the creation of markets capable of utilizing its own technology.

This division of the training domain into these six categories can obviously be challenged, as can any classification system. For example, a good case could be made for splitting technical education into engineering and financial training, as well as for separating manufacturing and craft training. However, the simplicity of this six-part classification system, and the reflection of an inherent consistency of disciplinary organization within its parts, are important benefits. A case could also be made for combining management training and employee development. In several firms participating in our study, such a merger was being undertaken. The folding of management training and employee development into a single large program represents a commitment to lessen the distinction between managers and other employees, particularly when most members of the staff are college-trained. In our classification system we have distinguished management training from employee development since, for the moment at least, each maintains a distinct relationship to the business of the firm. Management training differs as the business of the firm differs. The content of employee development programs, on the other hand, seems to vary less across firms, for here truly generic skills are being taught, primarily to help the employee take better advantage of his or her personal opportunities.

The ultimate advantage of any classification system is that it allows comparison across dimensions. In Figure 2 we attempt such a comparison by categorizing the level of general responsibility held on each of our three levels of location for each of our six training domains. We have used three broad designations to classify levels of responsibility: "prime," "major," and "occasional." When "prime" responsibility for training in a particular domain lies at any one level of location, this indicates that it is at that organizational level that these programs tend to be principally "owned" and where responsibility for curriculum design is centered. "Major" responsibility also implies a tendency toward "ownership" and responsibility for curriculum design, and in cases where programs in a domain are sometimes, but not often, centered at a particular organizational level, we have labeled that responsibility "occasional." Where a cell in the table is blank, we found no example of a training program in that domain being "owned" at that level of location. With only twenty firms and a few more than fifty separate enterprises in our study, we cannot claim that these patterns are entirely comprehensive, but we suggest they can be generalized across most firms with extensive training programs.

Figure 2 highlights some basic patterns: management and clerical training programs are principally owned at the corporate level; technical and sales/customer service training are most often the responsibility of the division, group or subsidiary; and prime responsibility for manufacturing/craft training and employee development is usually centered at the plant, department, office, or store. Note that we found no example of a division or wholly-owned subsidiary with its own clerical training program. It should also be noted that corporate sales/customer service training programs did not exist as such within the firms we studied, but in particularly large firms there were corporate staffs responsible for giving assistance to sales/customer service training programs at the divisional level.

We also want to call attention to the strong link between sales/customer service and technical training programs. Both tend to be geared toward those with some college education or degrees; they require an understanding of the firm's product-line, and train toward the ability to comprehend and communicate complex technical processes. As we suggest below, if a firm can link technical training, sales/customer service training, and product development, it gains an important advantage in the process of creating new markets and maintaining established client bases.

Figure 2

RESPONSIBILITY BY LEVEL OF LOCATION AND DOMAIN

LOCATION LEVEL	CORPORATE	DIVISIONAL/ GROUP/ SUBSIDIARY	PLANT/ DEPARTMENT/ OFFICE/STORE
DOMAIN			
MANAGEMENT	Prime	Major	Major
EMPLOYEE DEVELOPMENT	Occasional	Occasional	Prime
TECHNICAL	Occasional	Prime	Prime
MANUFACTURING/ CRAFT	Occasional	Occasional	Prime
CLERICAL	Prime		Major
SALES/CUSTOMER SERVICE		Prime	

A final observation drawn from Figure 2 concerns the widely shared responsibility for management training. At the corporate level it is management training that often communicates what has come to be known as the "culture of the firm." But, at every level, key managers find it important to "own" the training given to those employees responsible for meeting the goals established by senior management within the Firm, within the Enterprise, or within the Site.

FOCUS

We come now to the third, and in many ways the most important, dimension in our classification scheme: the focus of the training curriculum itself. Recall that our purpose in this and the next chapter is to develop a classification scheme which will allow us to compare the content and organization of training programs across industries, and to contrast employer and employee perspectives on the purpose and efficiency of such programs within firms. We began with an elementary proposition: firm-supplied training occurs when a firm seeks to teach skills to employees. Excluding what is traditionally called "on-the-job training," we define firm-supplied training as the teaching of skills to employees outside of the regular work routine, either during or after hours.

In defining firm-supplied training and education as the teaching of skills, we have in mind more of a continuum than a category. At one end is the teaching of highly technical skills, either generic or job-specific, including such traditional categories as systems engineering, accounting, computer programming, technical or expository writing, machining, the repair of a particular instrument, or how to use a particular form or procedure. At the other end of the spectrum are behavioral or "people skills," the content of the human relations and organizational development courses often refered to by trainers as "coaching and counseling." These have become a staple of many firm-supplied training and educational programs.

The lengthier and more complex a training course, the more likely it is to include aspects of both technical and behavioral skills training. Typically, sales/customer service training involves introductory accounting and corporate financing as well as discussions of personal motivation, style, and comportment. Even the most rigorous engineering course will frequently give some attention to professional development, explaining how to use technical skills to build a better future within the firm. Any given firm-supplied training program will, therefore, have two extremes: one marking the maximum level of technical proficiency sought, the other marking the maximum level of behavioral proficiency sought. Each training program will maintain its own balance between the two--tilting either towards the technical or the behavioral.

Training and education programs within firms have another major function beyond the teaching of skills. Put simply, involvement in training and education programs is a principal mechanism for employers to send both simple and complex signals to their employees and, not infrequently, for employees to send signals to their employers. Again, we have in mind a continuum. At one end are simple signals, and at the other are the more complex, each involving both employers and employees. In most firms an invitation to the next training program is in fact an announcement that the employee continues to make promotional progress within the firm. Quite often there is little that is subtle about this process. Many training directors use the following kind of standard letter to inform an individual that she or he has been accepted:

> I believe that your selection for this program is an outstanding honor and one that you should be proud of. . . . The company has devoted a great deal of time to make sure that the best people were selected. We feel that you are one of those best people. . . . I would like to add this comment: the decision to select you and the other two persons was made on the basis of enthusiasm, ambition, desire and preparation. . . . This puts you in a select group of up and coming people in the organization.

Equally traditional are the week-long seminars in interesting places (often resorts) and the temporary posting of chosen employees to the firm's training headquarters, with its profusion of personal amenities and corporate perks.

Training programs, particularly as they involve the teaching of behavioral skills, offer other important signaling opportunities. In some firms, posting an employee to a training program that does not involve likely promotions implies his or her need to "cool out." It is a signal that he or she has reached a plateau within the firm or has even begun to decline in the supervisor's estimation. Recommending that individual workers participate in a firm's stress clinics, physical fitness programs or alcoholic rehabilitation courses is another way for the firm to signal concern for the employee's well-being and to gently remind him of his obligations to the firm.

Equally important are those mechanisms by which employees can signal their firms. Voluntary participation in an after-hours training program is probably the most obvious employee-to-employer signal. In cases where the duration of an employee's training depends on the rate at which he or she masters the tasks, the amount of time spent in training becomes a clear signal of relative competence and ambition. This kind of training is best exemplified by the case of the service engineer who must learn to service and repair the increasingly complex equipment that his firm supplies to its customers: computers, copiers, cash registers, vehicles, and so on. Most companies that produce such items and employ service engineers to maintain them have developed highly complex training centers to which the worker is posted when it is time to train him on a new machine. The employee remains there until he or she can demonstrate competency on the new piece of equipment. Ordinarily, there is a range of expected duration for the training cycle--for example, not less than three, nor more than five, weeks. For the firm, the flexible training cycle offers two distinct advantages. It allows the efficient application of resources, sending the fast learners back to their jobs more quickly and allowing the training staff to concentrate on those needing more individual attention. Just as important, the rate at which an employee completes the training cycle is an implicit test of his or her competency, one garnered without administering a formal test or asking a supervisor to rate performance. In this sense, the training program provides the employee with the opportunity to apprise the firm of his or her inherent competency and, by implication, his expectations for continuing rewards.

The third component of our focus dimension captures the actual scope of the training program. We have already observed that some firms can and do offer general training. Several firms in our study, for example, offer specialized engineering training on par with good university schools of engineering. In areas where the firm itself dominates the creation of new technology, that training may be as unique as it is superior. The large firms in our study offering financial services and products have developed similar, though seldom as extensive, general training programs teaching fungible skills. Sales/customer service training, precisely because it is designed to provide product knowledge, frequently provides a general understanding of those competencies from which the firm's products grow. Manufacturing/craft and clerical training often involve generic skills easily transferable from one employer to another.

However, as we have also noted, most firm-supplied training is in fact task- and job-specific. Most such training is designed to teach the employee precisely what he or she needs to know to better perform today's job. One should not be surprised by the task-orientation of firm-supplied training. Such training is often the principal means of standardizing procedures as well as introducing new equipment and production techniques. The fact that training is task-specific does not mean it is simple or narrow. The requirement, for example, that individual members of an insurance rating committee process similar cases in precisely the same way yields a sophisticated, highly interactive training sequence involving formal methods and computerized aids. One of the best instructional programs we observed in our study involved a complex mix of manuals, video demonstrations, and classroom instruction in the use of the firm's proprietary welding techniques.

Finally, we should note that whether a training program's scope is more generic or more task-specific appears not to be determined so much by the program's skill-orientation (behavioral or technical), or the extent of its use as an explicit communication channel for either simple or complex signals, but rather by its location. In general, corporate training programs are likely to be more generic, and plant/department/store/office training programs more specific. Indeed, as we shall suggest in the next chapter, the tension between local managers and corporate executives over the content of training often finds corporate executives arguing the need for longer-term investments in general employee skills, while local managers voice concern with "improved productivity, now!" As one training manager observed to us early in our study "You've got to understand, it's the departmental manager who has 'got to get the iron out the door.'" This analogy aptly expressed the local manager's need to provide task-specific training to current employees in order to meet current goals.

We want next to extend this discussion of the focus of training programs, by decomposing Figure 2 into its constituent domains and sketching the general distribution of training programs of the firms we studied along the three continua we have described: skills, signals, and scope. It should be understood that the labels given each type of program reflect its central tendency, determined by the preponderance of evidence. We believe this outweighs specific contradictory examples which, in fact, could be provided in almost every case.

Management training (Figure 3a) remains the classic example of the behaviorally oriented firm-supplied program. The curriculum at every level is designed predominantly to improve managers' "people skills." Much of the curriculum is constant across the industry, accounting for the popularity of both Kepner-Tregoe and the American Management Association Programs. When designed and offered by the firm itself, it is management training that is most conscious of the signals it sends to participants and the signals employees return. Corporate programs are most frequently generic, seeking to provide a broad set of skills applicable across the firm, as well as to communicate what management

Figure 3a

FOCUS OF MANAGEMENT TRAINING BY LEVEL OF LOCATION

	(PRIME)	(MAJOR)	(MAJOR)
LOCATION LEVEL	CORPORATE	DIVISIONAL/ GROUP/ SUBSIDIARY	PLANT/ DEPARTMENT/ OFFICE/STORE
SKILLS	Behavioral	Behavioral	Behavioral
SIGNALS	Complex	Complex	Simple
SCOPE	Generic	Task-Specific	Task-Specific

trainers unabashedly call "the big picture"--the strategic positioning of the firm in terms of its markets and competitors. At the divisional/group/subsidiary and plant/department/office/store levels, management training is much more likely to be task-specific, seeking to teach particularly behavioral skills for responding to current management problems and opportunities.

Clerical training (Figure 3b) presents a much different picture, principally teaching generic technical skills while making little use of two-way communication channels. In

Figure 3b

FOCUS OF CLERICAL TRAINING BY LEVEL OF LOCATION

	(PRIME)		(MAJOR)
LOCATION LEVEL:	CORPORATE	DIVISIONAL/ GROUP/ SUBSIDIARY	PLANT/ DEPARTMENT/ OFFICE/STORE
SKILLS	Technical		Technical
SIGNALS	Simple		Simple
SCOPE	Generic		Generic

terms of skills, signals, and scope, clerical training resembles nothing so much as the traditional clerical programs taught in public and proprietary schools. In part, firms have built these duplicative educational programs in response to a genuine shortage of skilled, well-trained clerical personnel. However, these programs also make it possible for the firm to recruit minority employees and thus meet its affirmative action goals. Because new employees comprise a significant portion of the clerical-trainee population, it is understandable that firms do not often use these training programs for institutionalized employee feedback.

Technical training (Figure 3c) programs are principally owned at the divisional/group/subsidiary level. Though they primarily provide technical skills, as we have already suggested, most firm-designed technical training curricula include substantial behavioral components. The exception is at the plant level, where these programs most often involve standard, often self-paced learning packages supplied by vendors. Technical training programs make extensive use of two-way communication channels. In addition, our earlier story of the project-management training course was but one example of the fact that in the few firms that operate corporate technical training institutes, these programs are truly generic. For the most part, however, we found technical training even at the divisional level to be more task-specific than generic, focusing on the particular skills necessary to solve current problems.

Under the "corporate" category in Figure 3d, the blank cells indicate the fact that none of the firms in our study actually mounted what could be considered a corporate sales/customer service training program. Rather, these are located primarily at the divisional/group/subsidiary level, and are, on balance, task- and product-specific in emphasis,

Figure 3c

FOCUS OF TECHNICAL TRAINING BY
LEVEL OF LOCATION

	(OCCASIONAL)	(PRIME)	(PRIME)
LOCATION LEVEL:	CORPORATE	DIVISIONAL/ GROUP/ SUBSIDIARY	PLANT/ DEPARTMENT/ OFFICE/STORE
SKILLS	Technical	Technical	Technical
SIGNALS	Complex	Complex	Simple
SCOPE	Generic	Task-Specific	Task-Specific

and technical in content. Sales/customer service training programs ordinarily develop extensive feedback mechanisms. In one firm, where the simple and rational sales presentation of its product was an important priority in the product's technical design, the sales/customer service training group was often consulted by the development lab. Another intriguing example of the implicit two-way communication possible through a sales/customer service training program was the recommendation within one wholly-owned insurance subsidiary that video-taped sessions with sales

Figure 3d

FOCUS OF SALES/CUSTOMER SERVICE TRAINING BY LEVEL OF LOCATION

		(PRIME)	
LOCATION LEVEL:	CORPORATE	DIVISIONAL/ GROUP/ SUBSIDIARY	PLANT/ DEPARTMENT/ OFFICE/STORE
SKILLS		Technical	
SIGNALS		Complex	
SCOPE		Task-Specific	

trainees (a standard part of most sales/customer service training programs) be used to evaluate how well district managers understood the firm's shift to a more complex product line.

We turn finally to the two training domains principally owned by plants, departments, offices, and stores. Of the two, manufacturing/craft training (Figure 3e) exhibits the most straightforward organization. Its subject matter is almost exclusively technical, and its scope predominately task-specific. Traditionally, manufacturing/craft training

Figure 3e

FOCUS OF MANUFACTURING/CRAFT TRAINING BY
LEVEL OF LOCATION

	(OCCASIONAL)	(OCCASIONAL)	(PRIME)
LOCATION LEVEL:	CORPORATE	DIVISIONAL/ GROUP/ SUBSIDIARY	PLANT/ DEPARTMENT/ OFFICE/STORE
SKILLS	Technical	Technical	Technical
SIGNALS	Simple	Simple	Simple
SCOPE	Generic	Task-Specific	Task-Specific

has not played a communication role within plants. But in recent years the introduction of quality circles for production workers has introduced a significant new signaling component into manufacturing/craft training, exemplifying training's capacity to both standardize perceptions and build better understanding across lines of authority. If the movement towards quality circles continues, manufacturing/craft training will include a significantly larger behavioral component as well as much stronger and more heavily utilized communication channels.

Corporate sponsorship of manufacturing/craft training is not common, but, where it exists, the focus--unlike at the plant level--is on generic skills. The growth of such activity over the next decade would be a clear sign that skilled-labor shortages were in fact impeding the economic development of major firms.

Among our six domains, employee development (Figure 3f) was the one most often locally owned and organized. Indeed, the more local the sponsorship of such programs, the more often the course offerings are focused on specific aspects of behavioral/personal development. The best local programs also establish important networks to facilitate communication between firm and employees, where the firm can communicate its interests, and employees can express their aspirations and personal problems without fear of direct disciplinary action. As well as we could judge, when employee development programs were operated at the corporate and divisional level, it was principally a matter of convenience or efficiency. Among our firms, an exception to this rule was one attempt by senior personnel staff to standardize employee development programs. This was part of an overall strategy to bring greater adhesion and consistency to a firm of nearly 20,000 employees, 80 percent of whom worked in a single office tower in Manhattan. Even in

Figure 3f

FOCUS OF EMPLOYEE DEVELOPMENT BY LEVEL OF LOCATION

	(OCCASIONAL)	(OCCASIONAL)	(PRIME)
LOCATION LEVEL:	CORPORATE	DIVISIONAL/ GROUP/ SUBSIDIARY	PLANT/ DEPARTMENT/ OFFICE/STORE
SKILLS	Behavioral	Behavioral	Behavioral
SIGNALS	Complex	Complex	Complex
SCOPE	Task-Specific	Task-Specific	Task-Specific

this case, however, the basic content and orientation of the program were indistinguishable from that of locally developed programs in other firms in our study.

If we were to look at the entire fifty-four cells of our matrix with each domain's principal ownership highlighted separately, a few generalizations would emerge. On the whole, there is more of a tendency toward technical training programs than behavioral. We also see that corporate programs are more likely to be generic than their local counterparts, and locally controlled training programs are less likely to use training as a complex communications channel. Again, our tables report not frequency of occurrence as much as central tendencies; thus, for almost any individual generalization we can cite at least one counter-example, even from our own researched cases.

What we have attempted to demonstrate is the overall utility of our classification scheme for denoting different aspects of firm-provided training. Despite the sheer variety of training programs and dispersal of training responsibility across our Firms, Enterprises, and Sites, consistent classification using broad categories and noting central tendencies is possible.

CHAPTER IV

CAREERS AND TERRITORIES

Firm-supplied training remains a function more easily classified than described, in the sense that we can more readily identify its principal components than assemble them into a coherent whole. One reason training is best known for its particulars is that each of its domains retains an independence of function and purpose: management training is as separate from sales/customer service training as the latter is distinct from technical training.

Another cause is that within any large firm the responsibility for training is diffused. Even the best-informed CEO's have trouble remembering all the different kinds of training in which their firms engage. It is the rare corporation that has designated a senior executive officer to speak for all training and education. We have already noted that,

- The management and organization of training within the firm largely derives from the functional and structural organization of the firm itself.

The line-manager who owns the training defines its task, establishes its budget, and selects its manager. The demarcation between training domains is thus reinforced by the independence of the line-organizations to which each reports and by each organization's unique definition of the problems they are expected to solve.

Training as Response

The fact that so much of training is reactive also means that the trainer lives in an organizational world in which "what works today probably won't be needed tomorrow." The tendency of trainers to solve problems more than develop educational sequences and, consequently, to outmode themselves, helps explain why so much of the organization and functioning of training remains decidedly unschool-like. Although that description will surprise observers who have visited the richly appointed, campus-like training facilities developed by some firms, the fact is that firm-supplied training is much more likely to take place in a store front, temporary office space, or hotel conference room than in a separate or dedicated facility. While most of the firms in our study had separate training facilities, less than a quarter of their training was performed in these separate centers.

It is equally uncharacteristic of firm-supplied training to involve a core curriculum. While most large firms, particularly for their management and technical training programs, publish annual course listings resembling college catalogues, these courses carry with them little of the institutionalization of instructional paths ordinarily denoted by a standard curriculum. Most training courses are short in duration, and tailored to task-oriented learning.

Indeed, corporate announcements of training programs are designed for fundamentally different audiences, and hence, purposes, than are college catalogues. In the latter case, the audience is composed of prospective students. In the case of firm-supplied training, the audience comprises managers wanting to enroll members of their staff in a particular training program. The distinction is crucial. In most formal education it is assumed that the student is both the consumer and the customer. Where there is a specific tuition charge, there is a further assumption that the cost of the course is somehow to be measured against the benefits the student will receive. Seldom do either of these assumptions apply within the realm of firm-supplied training.

Trainers have two sets of clients, neither of whom are, in fact, the employees they train. Training's first clients are the senior managers to whom training reports. It is they who must be "sold" a particular training sequence as being needed, feasible, and affordable. Once the necessary approval and budget has been secured, trainers turn to selling the program to their second clients, the line-managers with staffs in need of that particular type of training. One method frequently used in this selling campaign is to announce the new training sequence in the firm's catalogue of courses. Usually the campaign also includes personal contacts, supplemental announcements and, where good computerized records exist, identification of likely participants based on their training histories.

Increasingly, this selling process is being linked to that of formal performance review--a connection that further reinforces the perception of training as a management response to employee development. In their annual or semi-annual performance evaluations, managers identify areas in which employees reporting to them either need further training to ensure acceptable levels of performance in a current job, or are ready for additional training in preparation for new responsibilities. In most firms, once the manager has performed the evaluation, he is expected to identify training courses that will meet the employees' needs.

One firm in our study has tangibly linked the training identification process with each performance evaluation by including a Training Needs Matrix (see Figure 1) in the standard evaluation form. On this matrix, skill areas drawn from the performance review are displayed across the rows; the columns list potential sources of training, emphasizing the firm's own programs. The creation of this particular matrix was part of a significantly larger effort to strengthen the Corporate Personnel function within a firm that has been expanding through an aggressive acquisitions policy. Just as Corporate Personnel was prepared to insist that every unit across the firm--each separate enterprise, division and department--use the same performance evaluation form, so it was now signalling that it would provide all managers and employees with a truly firm-supplied training strategy to help ensure their basic competency. Details of this strategy were disseminated through the firm's training bulletin so that managers could enroll employees in the appropriate training courses.

We should note that although many trainers are former teachers, they seldom serve faculty roles within their firm's training departments. Most professional trainers are, in fact, managers of small training groups. Their principal task, beyond assessing and "selling" the need for training, is to choose and supervise the vendors and consultants who, on average, develop more than half the instructional programs offered to a firm's employees. Indeed, within firm-supplied training there is little of that sense of faculty continuity characteristic of most

Figure 1

Training Needs Matrix

	CORPORATE TRAINING COURSES													
	THE SUPERVISOR	THE MANAGER	MANAGERIAL EFFECTIVENESS	ADVANCED COMMUNICATIONS WORKSHOP	PROFESSION OF MANAGEMENT	RELATING STYLES	PRESENTATION SKILLS	BUSINESS WRITING	TIME MANAGEMENT	FINANCE & ACCOUNTING MANAGER	PROBLEM ANALYSIS	MANAGEMENT WORKSHOP	PERSONAL COMPUTING	INFORMATION TECHNOLOGIES
SKILL AREAS														
Self-Management:														
Planning, organizing, goal setting......														
Setting priorities......................														
Working with minimal supervision........														
Quantity of work........................														
Quality of work.........................														
Written communication...................														
Verbal communication....................														
Effective presentations.................														
Conducting meetings.....................														
Effective listening.....................														
Knowledge of industry...................														
Employee Management:														
Leadership..............................														
Recruiting employees....................														
Setting clear goals with employees......														
Providing feedback and coaching.........														
Delegating appropriate tasks............														
Encouraging employee ideas..............														
Managing conflict.......................														
Equal Employment Opportunity............														
Planning management succession..........														
Monitoring staff........................														
Appraising staff........................														
Developing staff........................														
Allocating staff resources..............														
Business Management:														
Technical knowledge.....................														
Financial analysis......................														
Problem-solving.........................														
Contract management.....................														
Medium-range planning...................														
Profit planning.........................														
Controlling expenses....................														
Allocating financial resources..........														

schools. In the course of this study, for example, we met few "grand old men" of training--pioneers to recount the growth and development of their craft. Although we interviewed nearly 300 trainers, fewer than twenty had been in training before 1970, and more than half had less than five years actual experience in the profession. Most had begun their careers as something else, then transferred to training. No more than a few expected their aspirations to be satisfied within their present firms. Even fewer either expected or wanted to build their careers as "stand-up trainers."

Training as Profession

One result of this impermanence is an understandable sense of detachment from both firm and craft. In firms everywhere, trainers puzzled over their own status. Not part of the "business of the business," they wondered just who understood precisely what they were doing or why. Confident in their own ability to be effective, most trainers were nevertheless unsure of the criteria by which their performance should be measured, either by themselves or by the managers to whom they reported. In a world in which "return on investment" is a standard measuring-rod, trainers are without a true bottom-line of their own. One can be convinced that training makes a difference and still not know how to establish that fact in terms of a balance sheet.

One reason trainers do not know how they are being measured is that the line-managers themselves have no idea how to gauge the value of training in terms of added human capital. They, in fact, do not so much control training expense as constrain the time employees can be away from scheduled tasks. One senior vice-president in the oil company in our sample said frankly, "I don't care what the training budget is, they can't spend too much money because I don't allow them to take too much of my staff's time." When making the decision as to whether or not he can spare his staff for training, this manager and hundreds like him are much more prone to rely on their own instincts, often shaped more by the persuasiveness of the trainer than on any formal analysis. In most executive suites, commitment to training remains an article of faith.

The lesson most trainers draw from encounters with senior managers is simply "it pays to be organized and active." Every good training plan builds on summary projections of individual enrollments and course or program offerings. The more entrepreneurial the trainer, the more complete will be his or her plan in terms of business goals and objectives. Selling the need for training to even a sympathetic senior manager means proving that operational

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problems can be lessened by well-conceived training programs. This further reinforces the task-orientation of much firm-supplied training.

The difficulty is that even the successful trainer often works in isolation--not quite part of the "business of the business," yet not able to draw fully on the support and legitimacy automatically conferred by a well-established profession, though this is now beginning to change. Training's major professional organization, the American Society for Training and Development (ASTD), was founded in 1945 largely by men who had built from scratch the training programs spurred by the war effort. ASTD's first members reflected the _ad hoc_ nature of most firm-supplied training programs. Most were trainers by accident rather than design, men and women good at teaching others what they had learned on the job. The 1950s and 1960s were years of steady growth for ASTD, witnessing the founding of its journal, the recruitment of a professional staff, the creation of specialized institutes, and the establishment of an annual meeting.

To be a management trainer no longer meant taking time out from one's regular job to teach new employees the tricks of the trade. Many might still begin as the first trainers had begun--coming "off the line"; increasingly, however, one had go to school to become a trainer or to master the skills of organizational development, an emerging discipline for management training.

Trainers as a Constituency

Nearly three-quarters of the trainers we interviewed as part of this study belonged to ASTD. But only one-in-ten reported they were active members. Included in our sample were a former ASTD president, several members of major committees, and one recent winner of one of the Society's major awards. Among those who were inactive, or non-members, two major complaints were frequently voiced about the Society, each more a reflection of the growing pains of the new profession than any failure on the part of ASTD itself.

The most common complaint was simply that the Society is dominated by vendors and consultants--the small companies and individual agents who collectively deliver most firm-supplied training. ASTD meetings at the national level, we were told, are principally trade shows and, at the local or chapter levels, opportunities to make contacts and secure new business. This self-promotion creates a problem that costs the profession at every level. The trainer whose primary goal is to build a large enough portfolio within a firm to "go out on his own"--first as a training consultant and then as an established vendor--symbolizes the problem in its most criticized guise. In most firms we visited, trainers spoke of predecessors now successfully out on their own; and more than one respondent referred to the departed trainers with a sharp undertone, irked that they had used their position within the firm to develop products now being sold under their own labels. There is an understandable need for trainers who define their careers principally within firms to distance themselves from those independent vendors, even as they continue to depend on the vendors for most of their training materials. What in fact may be emerging is not one, but two, professions: the first comprising training-suppliers--primarily training vendors and consultants--the second composed of training managers less expert in training methodology than in its organization and delivery within a firm.

In Search of Discipline

The second complaint frequently voiced about ASTD as a professional organization was that it pays too little attention to the "how-to" of training. There is a growing sense among trainers everywhere that their profession must now establish its own conceptual framework--what, in the academy, would be considered the hallmarks of a discipline: basic and consistent definitions, and established methodologies. The training profession's fundamental problem is in the lack of training credentials. In the first place, among those whom training serves, there is a lingering suspicion that if "experience is the best teacher," then "experienced hands" are the best trainers: if they lack formal methodology they will more than compensate with their ability to testify to the strategic importance of the techniques they teach. Most of technical training, financial as well as engineering-based, is still organized around such subject-matter experts, and among sales/customer service training programs it is the rare exception when principal instructors and managers are not themselves highly successful salespeople on temporary assignment to the training school. Manufacturing/craft and clerical training follow the same pattern.

It was in the 1960s, with the development of broadly-based management training stressing non-firm-specific behavioral skills and methodology, that training as profession and discipline made its first major break with this tradition. Management and supervisory training gave line-executives behavioral skills with which to amplify their natural talents for management. Management trainers did not have to be experienced in the business of management, in fact they seldom were skilled executives. No longer was the "old hand" a valued instructor. In fact, he could only teach bad habits. In his place emerged a whole new set of instructors, frequently trained in organizational development, who could draw on a variety of educational methodologies for presenting complex behavioral concepts. For the first time, organizational development was in itself an important expertise whose subject matter was not the "business of the business" but rather led to a set of personal techniques for developing organizational and behavioral skills.

In the 1970s, organizational development as an academic specialty came to dominate the conceptual framework used in behavioral-based management training. Significant numbers of trainers began themselves to be trained by a variety of programs, sometimes centered in schools of education and linked to psychology programs with specializations in organizational development and behavior.

While behavioral-based organizational development could contribute little to other than the management domain, a precedent had been set and a lesson taught. Training could now generally draw on academic specialties to enhance its legitimacy and further its sense of being a profession. By then, a second academic discipline had emerged. Though actually different from organizational development, instructional design could serve the same function of giving trainers roles within their firms without their becoming part of the business.

Instructional designers take special pride in the fact that they know literally nothing about the subject for which they must construct a training curriculum. Their task is two-fold: first, to identify experts to catalogue and demonstrate the technical skills to be taught; second, to convert that catalogue into a learning sequence complete with written, audio-visual (principally video), and testing materials. Among firms with major technical and manufacturing/craft training programs, we found a growing acceptance of formal instructional design methodology as an alternative conceptual framework for training as both profession and discipline. Although the range of subject matter varied widely, the basic approaches to the construction of new training sequences were remarkably similar in both domains.

Instructional Design as Methodology

The most interesting implementation that we observed of instructional design as methodology was in a major insurance company's real estate investment division, where it was used in developing a highly specialized, largely self-taught training sequence for key professionals. The story of this development is worth telling in some detail, for it indicates the potential offered by instructional design as a conceptual underpinning for the craft of technical training.

For most of the 1970s, directors of training for this real estate investment division were high-potential managers brought back to headquarters for two years of seasoning and exposure to senior management. Their formal task was to review training materials used by the division, principally to standardize the firm's approach to real estate investment. But the training director also circulated among the division's major offices, seeking to identify problems not currently addressed by the division's training materials. The difficulty with being in the position was that it was not much fun after the first circuit of major offices had been completed and being recognized as a fast-tracker was no longer new. From that point on, most training directors spent as much time trying to move on as they did satisfying the technical requirements of their position. Two strategies generally presented themselves. The training director, precisely because he moved across the firm finding unsolved problems, could offer his services as the solution. Or, he could speed up the process of indentifying his successor. Apparently, both strategies were applied simultaneously with varying success.

The succession of training directors might have continued unabated except for a chance encounter at a cocktail party between the incumbent training director and Bill M., then working as a training specialist for AT&T.

Bill graduated from a mid-western college in the late 1960s, joined the Army as an officer in the Signal Corps, and then spent most of his service-time stationed in Germany at one of the large operations centers for the European command's communications network. There, Bill, as he later recounted the story, made three principal discoveries. First, he realized that his success depended on an efficiently run group--one that reduced mistakes by anticipating problems. Second, like all young second lieutenants who survived, Bill learned that it was the sergeants who knew technically what to do. Third, and probably most important, Bill became both a student and an admirer of the training materials the Army provided for units like his to improve their technical proficiency. Relying on his sergeants for experience, and the Army's training manual for subject-matter expertise, Bill could run a highly efficient unit without having a broad technical understanding of the communication's network for which he was responsible.

Upon his release from the Army, and now possessing a Master's degree in education (earned through a continuing education program for American servicemen), Bill went to work in one of AT&T's most innovative technical training groups, then responsible for designing instructional materials for use throughout the Bell System. AT&T then, as now, was one of the major firms most conceptually committed to the division between instructional design and subject-matter expertise. Instructional design at AT&T in the 1970s followed a well-specified, comprehensive methodology, and was to be approached as were standard engineering problems: make statements of specifications, design a series of sequential tasks, and develop sets of standard or testable results. Designers began with an analysis of the problem and ended with the development of a set of technically sound (in both the engineering and pedagogical sense) materials for the use of appropriate AT&T workers in learning skills for solving or, ideally, avoiding future problems.

Even within the AT&T system, which remains one of the best reputed centers for training in the American industry, training departments are highly subject to the eddies of organizational change. When, in the mid-1970s, the division to which Bill's training department belonged had its mission and budget reduced, young technicians like Bill began looking elsewhere within the AT&T system for opportunities. In 1978, Bill moved east with an assignment to a Bell System group that was then struggling to meet its mission. Bill quickly understood that success required devising his own agenda; he would become a one man S.W.A.T. team, which, with the help of the rudiments of instructional design methodology, would help solve short-term problems in the division's outposts. For the next eighteen months, Bill spent his time on airplanes, feeling that he had not really been given the opportunity to develop a proper training strategy, which he knew could prevent many of the division's problems from occurring in the first place. It was at this point that he met the training director of the real estate investment division.

We have only Bill's account of this accidental meeting, but it is clear that to the training director Bill represented a very special opportunity--a chance for an early release from his training post and, if Bill proved successful, the right to claim that he had brought new talent into the firm for a critically important position. Within three months of joining the firm, Bill knew what he had to do: use the instructional design strategy he had first seen in the Army, and had later learned at AT&T, to develop an integrated instructional program for the division. He estimated total cost over three years to be just under $1,000,000. Bill learned quickly, however, that whatever his long-term strategy, the senior managers to whom he reported wanted to consider his plans in significantly smaller portions. Hence, Bill's first request was for

$30,000 to have a vendor help him develop a "needs analysis"--the first component of the planned curriculum.

His next step was to establish a senior advisory group with the imprimatur of the division's senior vice-president. The advisory group had a dual purpose, the first being frankly political. The more often the advisory committee met, and the more frequently the senior vice-president attended, the more Bill's credibility grew and the easier it became to draw on the division's full range of resources. A second and equally important purpose of the advisory group puts into practice the central tenet of good instructional design: that those responsible for technical performance within a group must conceptually own the training used to achieve technical proficiency. Without ever fully explaining his intention, Bill turned the advisory group into a committee of standards for the real estate investment division. By approving each new instructional package, the advisory committee formally established standards of practice to an extent previously unknown within the division.

In Bill's planning, the development of an integrated, comprehensive training sequence depended directly on melding subject-matter expertise and professional instructional design. The former required, for each technical area, a subject-matter expert, or "SME," who understood the practices, rules, and concepts that the division wanted to standardize.

The other half of this process belonged to the instructional designers, whose technical skills were based on their ability to use instructional design methodology to elicit a full and complete rendering of technical concepts, definitions, and strategies from the SME. This depended on an explicit dialectic between SME and designers--question, answer, explanation, recapitulation--where the basic subject matter to be covered in training would be reviewed in depth. Both comprehensive questioning and diagnosis and complete recall and recounting were essential. Once the building blocks were established, the instructional designer then assembled them in a coherent pattern or sequence which was reviewed with, and then modified by, the SME. Where issues remained unclear, the process was repeated until the instructional designers could present to the SME a logically complete set of specifications detailing the technical information in question. The instructional designers then converted these specifications into a set of instructional materials, including methods of evaluation that would allow both trainee and instructor to measure the trainee's progress.

Once the specifications had been developed, they were reviewed by the advisory committee for accuracy and completeness. With understandable pride, Bill recounted a story of one stormy meeting when the advisory committee was horrified at the list of standard practices being presented as the basis for the next component of the training sequence. When it became clear to the advisory committee that the SME had explained current operating practices to the instruction designer, and that the latter had correctly translated them into a set of instructional specifications, the advisory committee could only ruefully admit that the inconsistencies between precept and practice in this case were unacceptable. The committee overruled the presentation of the SME in order to go back and establish necessary standards, just as intended.

While Bill necessarily drew his SME's from within the division, the instructional designers were all external to the firm. Bill had little interest in developing a permanent instructional design staff. Instead he saw his task as building, over a three-year period, a comprehensive instructional package which would then need only to be reviewed and updated. Bill turned, naturally, to vendors for his instructional design capability. He estimated at the outset that over the course of the three years he would let contracts worth over $800,000.

In choosing vendors, Bill sought to satisfy three objectives. First, he wanted a group that would work specifically for his firm rather than develop a product which it could then sell to other firms. Second, in order not to become dependent on a single supplier, Bill looked for at least two, and preferably three, vendors among whom he could spread the work. Finally, vendors chosen had to have enough infrastructure to ensure their likely continuation in business over the next five years or more.

Bill began with a list of thirty possible vendors culled from his experience at AT&T, and from his contacts among leading instructional designers. His first test involved calling all vendors on the list, ostensibly to ask about their possible interest, but actually to see which of the firms ran a functioning office. Struck from the list were potential bidders who regularly used telephone answering machines during normal business hours. Bill's reasoning was simple. A firm so small that it could not maintain at least a minimal office staff--what we would call a "mom and pop" operation--did not have sufficient staff capabilities to establish the working relationship Bill sought.

Of the thirty firms contacted, ten were invited to an interview to submit descriptions of their technical capabilities. Here Bill's principal purpose was to discover whether the firm offered "packaging" or instructional design. Again, Bill used a relatively simple test to sort out the vendors. Those who immediately proposed a package based on the rather modest specifications Bill had supplied--as Bill put it, "those who told me, 'I've got just what you're looking for'"--were eliminated. The response Bill wanted instead was, "We've got people who can do the design if you can give us real specifications." In the end, Bill offered contracts to two firms.

With his two vendors in hand, Bill began the business of actual design. In all, eight modules were produced: six focusing on the technical requirements of real estate investment and two focusing on traditionally-defined management training. Within three years the senior vice-president of the division could boast, "what we have here is the Harvard of real estate education."

Such hearty endorsements eventually led Bill into his only major failure during his three year terms as training director. Like most successful training innovators within large firms, Bill was as much entrepreneur as he was educator. Having developed a training program that introduced the basic concepts and definitions of real estate investment in a straightforward and logically consistent way, Bill sought a wider market for his product. Unlike his other initiatives, this idea was turned down cold by senior management. Part of the explanation given for the refusal concerned the proprietary nature of the training--although, as Bill pointed out, some of the firm's major competitors had already acquired copies of the basic materials. A more important reason was management's unwillingness to make the investment in infrastructure needed to become a supplier of educational materials. Education was not to be the business of the division, even if there was a profit to be earned.

It may also be that senior management had other plans for Bill. Shortly after this incident, he was offered, and accepted, a major line-position in one of the division's large regional offices. In our more than two-and-a-half years of studying training and trainers, Bill's transfer to line-manager was one of only two examples we found of a trainer using his position to gain sufficient subject-matter expertise to allow him to put what he taught into practice.

Bill moved on, handing down his position as director of training for the division to one of the key principals of the vending firm that had supplied him instructional design. This successor's motivation for accepting the position was his desire to settle down, to get away from the constant hustle for new business that is part of every vendor's life. He preferred this change even though he knew that here, with the training package now largely in place, far less opportunity was open to develop and implement his own ideas.

The story of Bill's development of a comprehensive and integrated training package for the insurance firm's real estate division reflects many of the major currents we have been tracing in the development of training--both as a profession and as an organizational unit within large firms. His choice of training as a profession, as well as his recruitment into the firm, were largely accidental. Although the integrated training package--which he sold piecemeal to senior management--would come to draw uniquely on the strengths of the real estate investment division as a whole, its conceptual strength derived from Bill's commitment to instructional design as the formal methodology best suited for linking training and subject-matter expertise. The division's decision not to allow Bill to develop a commercial product, and Bill's subsequent promotion to line-responsibility, also testified to the often-precarious position of training within such enterprises. There, success is measured almost exclusively in terms of the "business of the business." Successful training programs can add a fine rhetorical touch to a senior vice-president's annual report, but his own personal standing within the firm will be calibrated almost exclusively in terms of the division's bottom line and the executive's own ability to develop talented successors.

Instructional Design as Organizing Principle

While most successful executives we interviewed as part of this study did instinctively understand that good training programs help achieve those very goals, most were still reluctant to translate that commitment into fully-institutionalized technical training programs. This reluctance differentiates the domain of technical training from that of management training. Senior personnel officers, to whom management training almost invariably reports, know that their standing within the firm is measured in terms of the efficiency, and perceived efficacy, of their staff operations--including training. They have both a long-standing commitment to training's institutionalization and an understanding that successful training programs require conceptual and methodological coherence. This is why organizational development theory is of critical importance where training is dominated by professional management trainers. This impulse within so many large firms toward institutionalization of management training, conceptual as well as organizational, coupled with the absence of a similar impulse on the part of the senior executives responsible for technical proficiency, greatly explains why management training and its particular style so often prevail in public and corporate perceptions of firm-supplied training.

Yet, as Bill's story demonstrates, that picture may now be changing. Formal instructional design, with its ability to link the task of training with the business of the business, will likely come to rival organizational development as the conceptual wellspring of the trainer's craft. Most of the expanding training programs we observed--particularly those in the domain of technical (engineering and financial) and manufacturing/craft training--were making major efforts to acquire instructional design capabilities, principally through the use of a growing number of vendors.

Yet it may be the case that instructional design can also lead to a kind of formal institutionalization of technical training, much as the concepts and methodologies of organizational development led to the institutionalization of management training in the 1960s and 1970s. We return to the story of the large accounting firm that, in the 1970s, faced two problems to which the only apparent solution was a dramatically increased training budget.

First, the growth of the firm itself created an ever-increasing number of new professionals who needed to be taught the firm's practices, rules, and standards. Then, in the last half of the decade, this firm, like its competitors, fundamentally changed its auditing methodology so that the focus of an audit now shifted toward greater sampling of the accounting process. Every practicing professional within the firm had to be trained in this new methodology. Because the firm had a well-established reputation for training, it was able to draw on firm-wide resources to accomplish both the task of integrating fresh college graduates into its professional staff and that of retraining all professionals in the rules and standards of the new methodology.

Organizationally, training responsibilities were divided equally between the firm's field offices and a central training facility. The latter conducted the basic training received by each new professional and developed the materials used by the field offices in training their personnel. The training function was supervised by a senior partner with more than 25 years experience in managing major engagements for the firm. Reporting to him was another partner who, after nearly 10 years in the field, had accepted a position at the central training facility which, in academic terms, would be the equivalent of the deanship. The instructional staff consisted of line-practitioners temporarily brought back to the facility to teach courses.

At the time of our interviews, the firm's training program was in the midst of an extended period of review and consolidation. The recession had created at least a temporary reduction in the number of new hires and a corresponding eagerness to ensure that all training costs were absolutely essential. More important, there was a clear recognition that the intensified training made necessary by the shift in accounting methodology could have gone more smoothly, particularly if the need and specific requirements of a firm-wide training sequence had been better integrated into the strategic plan for the adoption of the new methodology itself. With the expected introduction of further electronically-induced changes in accounting practices, there would be sufficient opportunity to put into practice the lessons previously learned. One such lesson was simply that the training program needed to be more efficient, both in packing more information into a better format and requiring less of the trainee's time.

These considerations led to a basic change in the central training program's organization. There was a decision to pursue a systematic course development process that depended on the respective contributions of people who knew the course content and others who knew the educational process. The result was the recruitment of a staff of instructional designers who, working with the key professionals from the field practice, would produce a comprehensive, integrated set of training materials to be used in the field offices as well as in the central training facility. A staff of fifteen instructional designers were recruited in the late 1970s. Today, this group has grown to more than 50 instructional designers and course evaluators. Their impact on the quality of education is widely acknowledged within the firm.

We believe that the accounting firm's decision to institutionalize its technical training program through the purposeful introduction of a cadre of professional designers of educational materials is an important harbinger of future organizational trends in large firms requiring technical training of professional staff. One result of this trend will be a "boomlet" in career opportunities for instructional designers, either within firms or within the growing number of vending groups capable of providing professional design expertise. As technical training programs expand--particularly those made necessary by the introduction of new, electronically-based technologies and practices--large firms (and some highly specialized smaller firms and enterprises) will find it advantageous to institutionalize their technical training programs by recruiting established professionals and administrators from higher education, either to manage the programs or to assist in their development. Among the twenty firms participating in our study, four had recently hired such professionals in the area of technical training, and one had given general responsibility for management training within the firm to a recruit from a leading business school.

The implications of these developments for the training profession and its organizations are less clear. While the growing use of formal instructional design methodologies provides a conceptual framework that technical and other non-management trainers can share--much as organizational development provides a shared conceptual framework for management training--instructional design will not tilt the balance in favor of either firm-based or vendor-based training design. As our two principal examples make clear, instructional design can serve the needs of the firm whether supplied by vendor, as in the case of Bill's organization, or supplied by an in-house staff, as in the case of the accounting firm. A firm's size and its concern with the protection of its proprietary processes will play a role in deciding who actually develops the training sequence. Larger firms that actually develop new technologies will most likely want to build their own instructional design departments. Equally important, however, we believe that if a firm sees training as a business opportunity, it will be more likely to build its own instructional design staff. It is the fact that the large accounting firm sells educational services to its clients, and is now preparing to offer direct training to non-clients, that greatly distinguishes it from Bill's real estate investment division. Firms with large customer-service organizations that provide training as a matter of course will similarly find it in their interest to establish instructional design groups to improve educational efficiency while lowering the cost of their training packages.

Still, instructional design as either conceptual framework or methodology is unlikely to provide an organizational rallying point for technical trainers; it is doubtful, for example, that it will spark a single alternative organization to rival ASTD. In fact, ASTD will continue to attract the membership of many, and the active participation of some, technical trainers who enjoy the camaraderie of the organization and believe they benefit from the contacts it brings them. For personal development, these trainers are more likely to turn to one of the smaller professional organizations built around their specific specialties. It is also possible that trainers interested in instructional design will establish long-term relationships with institutions of higher education and perhaps even public systems of vocational education and training--particularly if there is new interest and accelerated investment in publicly supported programs of technical training.

Ironically, the growing importance of instructional design within technical training may actually exacerbate the career dilemmas faced by technical trainers. Bill, it should be noted, was a rare exception--a trainer who used his experience with formal instructional design in his managerial capacities to make himself a subject-matter expert and a line-manager. Even if more trainers were to make similar transitions, it is not clear that training as a profession would be well served. We talked to Bill again about a year after he assumed his new responsibilities. There was a certain wistfulness about him as he wondered aloud whether he had made a happy choice. What he wanted to do, he reminded us, was to train people rather than manage real estate investments. In terms of personal standing, professional mobility, and financial remuneration, he had made the right choice. The question he asked was simply, "Why was such a choice necessary?" Trainers responsible for technical education may face this question with greater frequency than do their counterparts in management training, who understand from the outset that their career paths within their firms lie clearly within the human resources domain. Though none of the senior personnel officers we interviewed had had experience as managers of training, several professional management trainers saw among their own career options the possibility of becoming chief personnel officers for their enterprises or firms. Managers of technical training still face careers whose robustness will be determined almost exclusively by the growth in scale of technical training within their enterprises or firms.

CHAPTER V

SERVICE VERSUS INVESTMENT

In business, money matters most. Indeed, the lingua franca of American management has at its core a vocabulary giving witness to the central importance of financial performance. "Bottom line," "return on investment," and "cost containment," are not simply catch words, their susceptibility to parody notwithstanding; they are, in fact, key concepts, deeply ingrained into the business culture.

All the more surprising, then, is our observation that for training, money seems to matter hardly at all. We have already noted that among the twenty firms in our study we found no systematic statement of training costs that includes the direct costs of instruction, instructional materials, and the trainee's compensation (as an offset to lost productivity), as well as the indirect costs associated with training's physical facilities and its proportional share of the firm's overhead. In fact, we found no firm that was inherently interested in the collection of such data. Our persistent questioning on this issue often brought smiles that suggested we had lost sight of the truly important: an understanding of the firm's training policy and its commitment to ensuring that each employee receive the skills necessary to perform successfully.

To be sure, we did meet managers of training who were concerned about the actual costs of their activities. New OSHA regulations have encouraged the development of computerized databases for cataloguing the training history of all employees requiring special skills to perform their jobs safely; this has meant that some managers of technical training have, for the first time, reliable data documenting the distribution and volume of their training activities. That, in turn, has encouraged some managers to estimate their unit-costs in terms of their direct expense associated with the delivery of a training sequence. The manager of technical training for the airline in our study has also used that same database to estimate the lost productivity of mechanics while receiving training. In addition, he is using these data in an attempt to document the cost-effectiveness of a training strategy that relies more heavily on the capital purchase of sophisticated training equipment, and the dispersion of trainers across the airline's route system, than on the airline's traditional strategy of sending mechanics to a central training facility. The manager of sales training in the pharmaceutical company in our sample has begun collecting performance figures on sales trainees who have taken part in specific training sequences. His hope, not yet fully realized, is to develop a quantitative model for measuring the impact of each training sequence on sales performance.

Even in these isolated cases, however, the development of rudimentary cost data derives almost entirely from the manager of training. In no case did we find a manager of training developing the full cost estimates of training activities at the specific direction of senior management. Rather, these managers of training spoke of an intuitive feeling that it "was the right thing to do." The manager of technical training for the airline shared, more than most others, our notion of the importance of understanding what things cost. Largely on his own, he had broadly documented the fact that, the growing sophistication of the airline's equipment notwithstanding, the airline's training-associated unit costs actually declined over the last decade. It quickly became clear, however, that few, if any, of the senior executives to whom he reported were interested in his analysis. While the comptroller's analysts were prepared to assist in developing formal cost models for technical training, the impetus for their development, as well as their planned use to justify his training strategy (which, not coincidentally, required revamped technical training facilities), belonged exclusively to the manager of technical training.

A Question of Scale and Perspective

Why, then, does the budget matter little in the evaluation of training in the great preponderance of firms in our study? We have already quoted the response of a senior executive from the petrochemical firm: "I don't care what the training budget is, they can't spend too much money because I don't allow them to take too much of my staff's time." As this executive observed, the unit of analysis for training is most often employee time, not a direct dollar calculation in which employee time is converted into compensation. And he was certainly right when he also observed that training itself seldom costs very much. Most training budgets are, in fact, small. The director of corporate training in the major retail firm participating in our study was required to build a consensus among the training directors of each of her chains, as well as the approval of the executive vice-president to whom she reported, before purchasing a training package whose total price was just under $20,000. The $300,000 spent by Bill's real estate investment division (see Chapter IV) on training supplies and expertise comprised the single largest training purchase we could document. Startled by the relatively small amounts of money involved in the purchase of materials and the hiring of consultants, we visited with a vendor firm that had recently won a major contract to provide training materials to the United States Army. This firm's winning bid was for just over three-million dollars. The bid of the runner-up in the procurement process was $40,000 more than that of the winner--just 1.3 percent of the total price bid--probably testifying to the precision of the cost-estimates. These estimates were derived both from the bidders' experience in working on military training contracts and from the five volumes of detailed specifications supplied by the Army as part of the procurement process. In these volumes, each training component--for instance, equipment, materials, training of trainers, a validation procedure for measuring training effectiveness--was specified by item, allowing the bidders to calculate cost with particular exactness.

Because the winning firm also worked regularly with corporations, we were able to inquire if characteristics other than magnitude of contract, precision of specifications, and validation of procedures distinguished military training procurements from work with private corporations. We were told that there is another difference, which arises from, and helps explain, the particular setting in which firm-supplied training occurs. When this vendor worked under Army contract, materials, including the firm's expertise, were purchased as piece-work. When performing tasks for a private corporation, the training firm supplied not piece-work, but consulting services, just as training departments ordinarily supply consulting services within their own firms. Apparently not uncommon in private corporations, Bill's letter of invitation to firms interested in supplying instructional design capabilities for the development of the real estate training program ran to less than ten pages. Without a total project budget established in advance, pressure to develop programs in small, ad hoc chunks is on both training managers and interested vendors. Thus, the shared strategy of both tne vendor and training manager is to minimize, rather than standardize or specify, the financial impact of a particular procurement. That impulse to minimize, always to understate the eventual training cost, does, in fact, help explain the absence of cost data, as well as the remarkably small scale of training purchases.

Accounting Codes and Perceived Costs

Ultimately, of course, the remark of the petrochemical firm executive bespeaks his basic feeling that training is inherently a support or service function. Two vignettes, drawn from our observation of training programs in two of the nation's largest and most technologically complex firms, attest to the importance of this perception in understanding why major firms are not more interested in documenting, and thereby understanding, the real cost of training.

When beginning the interview process, particularly in a large firm, our project team often met in seminar fashion with selected managers of training, each with a different area of responsibility. In one firm, the presentations by the training managers were particularly well organized and, with our permission, several additional central staff members had been included in the discussions so they might better learn about their firm's training functions. About mid-way through the session, a representative of one of the firm's separate technical training facilities began his presentation with the observation "this firm spends about $250 million per year on training." He was interrupted immediately by one of the central staff present, who asked, "How do you know that?" to which he responded, somewhat awkwardly, "that's the number on the computer printout under the training accounting code." For a few moments the firm's personnel forgot there were strangers in the room. There was a murmur of quick conversation and consultation as each sought to identify the computer report, which, it turned out, none of them had ever seen. Eventually, the representative from the technical training facility resumed his prepared presentation and, sensing that perhaps he had wandered into an uncertain thicket, deflected subsequent questions as to exactly what that $250 million figure represented.

Some weeks later the firm's official liaison to our study called to explain the apparent confusion as to whether or not there was central documentation of the firm's training expense. The managers of training were obviously confused as to what was reported on the computer report. The explanation given by the liaison was as straightforward as it was revealing. We were reminded that the technical training facility was quite distinct from the rest of the firm. All of its costs could be reported under a single broad training code. What the speaker had done in preparing his talk was gain access to some of the firm's general accounting reports and note the total amount of money accounted for within the training code to which his facilities' costs had been assigned. How many of the other managers of training knew that such an accounting code existed, or that its cumulative costs were noted on a particular summary report, is still unclear. It was important for us to understand, the firm's project liaison said, that nobody who really understood how training worked within the firm would have looked for that kind of number in that way. Such a person would have known that training expense was widely dispersed in a variety of staff budgets and that the particular accounting detail would vary according to the specific location of the training unit within the firm's complex structure. The message was clear. Those principally responsible for training within the firm simply knew that the organization of training as an inherently staff function made summary accounting impossible.

We should point out as well that the only costs being considered in these meetings were direct costs. None of the particular training managers had any way to, and for that matter little sustained interest in, computing the additional training costs associated with trainee compensation, facilities, or other relevant indirect charges. We subsequently learned that some vestiges of an earlier attempt at cost documentation did exist. In one of the firm's production facilities, workers on the line were able to indicate, on daily work records, time spent away from their own benches teaching specific procedures to fellow workers. This provision represented, in essence, an attempt to document the cost of on-the-job training in terms of the lost productivity of the "instructor." Though these forms were still in use and, presumably, some men and women did check the appropriate box when they assisted colleagues, we could find no one who actually looked at the data and were told that, frankly, they were not reliable anyway.

We add a postscript to this story, based on our later meeting with the newly-appointed director of financial training for this same firm. Formerly the head of a big internal audit group, Ken had recently been brought in to give central direction to an activity which had become too decentralized. The crux of the problem was that because each accounting and financial group in the firm was at liberty to engage local vendors to provide intermediate and advanced training to their respective staffs, an unacceptably wide variance in basic practices had developed. It was Ken's job to establish a central financial training facility not unlike the technical training facilities traditionally used by the firm to develop engineering talent.

When we met him, Ken had already entered into a major agreement with a local college, whereby the firm acquired the use of a key building through a long-term lease, and direct access to the faculty of the business school for the of teaching technical courses. Through a complex oversight arrangement that preserved the ability of the firm to use proprietary materials in courses exclusively for its own personnel, the college was able to evaluate the firm's curriculum and offer appropriate academic credit.

Meanwhile, during his first year in this position--while waiting for the necessary renovation to the building--Ken had revamped and accelerated the financial training courses being offered by his group. The results were dramatic increases in enrollments and in the corresponding fees paid by the various divisions to have their personnel participate in the courses. Indeed, as Ken confessed to us, his biggest problem at the moment was that the new "income" he was receiving had no relation to the actual cost he was bearing. Part of the explanation, as he knew, was that he had increased volume without increasing fixed costs, thereby lowering the actual unit cost of the training being delivered. The wider explanation, however, was simply that the tuition or fee each division paid was not true income, just as the training unit was not, in fact, a real cost center.

Ken's predicament points to a larger problem in the perception of how training is paid for within a large, complex firm. About half of the training "bulletins" we examined reported a fixed fee for each course, presumably to be paid by the department whose employee was to be enrolled. Figure 1 shows a course listing from the bulletin of a large diversified financial services firm, where such a fixed fee is included. We learned that in this case, as in many others, that charge had almost no financial significance to

Figure 1

JOB OF SUPERVISION

PURPOSE	Define the unique functions of first-line supervisors in relation to their managers' jobs and clarify supervisors' responsibility for their employees' productivity.
AUDIENCE	First-line supervisors
CONTENT	• Who, rightfully, plays the position of "supervisor"? • 4 contributions only the supervisor can make • 13 "result areas" comprising a supervisor's responsibilities • Duties supervisors should perform which managers shouldn't • The real payoff from supervision • Helping managers manage • Building managers' confidence in supervisors' judgment
REQUIREMENTS	None
DURATION	One day
HOW TO APPLY	Complete a course application (see last page of this announcement) and mail to Management Education For additional information, please call 3-4701.
FEE	$100

the training group, which actually operated as a corporate service center whose costs were charged out to the operating and corporate divisions as part of general overhead. While the tuition was charged against the budget of the trainee's department, it did not become income to the training program. It was also the case that the amount of the charge was not based on the actual cost, either average or marginal, of enrolling the trainee in the course. Rather, the fee (called "chargeback," to distinguish it from real income) was principally earnest money. Since "free goods" are often perceived as having little value, this firm believed it important to make training enrollments a real cost to managers selecting employees for participation in a given training sequence. While the training department in question kept detailed records of the number of enrollments in its courses--and used those figures as part of its justification of its budget--we found no evidence that either the training department, or the vice-president for personnel, to whom it reported, ever multiplied the number of enrollments by the appropriate stated tuition in order to determine the "net cost" of the training department to the corporation's central overhead budget.

Training as a Corporate Commitment

Our second vignette, which tells the story of a meeting that occurred at the very end of our study, provides an important glimpse into the reason that those responsible for training in so many large and complex firms have so little interest in measuring or analyzing the actual cost of the training programs they operate. The firm we were visiting was one of several that asked members of our project team to report our observation of the condition of training within the firm to senior management. On this particular occasion, we met at the invitation of the executive vice-president with senior managers responsible for corporate relations, compensation and benefits, management education, and industrial relations. Since the meeting took place at the very close of our study, we could utilize the conceptual framework now developed in Chapter II in order to describe the dispersion of training we found throughout their firm. The senior managers, headquartered in the firm's corporate offices, sharply questioned our description of a highly decentralized training function in which there was surprisingly little sharing of training experience, personnel, or packages--either across the firm's many enterprises or across domains within a single enterprise. We had explained that the manufacturing training group of one of their firm's businesses was largely unaware of corresponding and, in some ways, duplicative programs in other of the firm's enterprises, just as there was little coordination among sales, manufacturing and management training within any of the divisions we had observed most closely. In the end they largely accepted our portrait, since they themselves could supply no counter-examples of firm-wide, centrally directed training activity, except for the very large management training facility operated by the firm near its corporate headquarters.

Where there was a sharp, one might even say fundamental, disagreement between these corporate officers and the project's principal staff was over our recommendation, then in draft form, for

> the regularization of budget and accounting procedures for identifying the full cost of training, including the trainee's salary and the proper share of internal overhead that training departments occasion.

To a man, these senior managers argued that what their firm needed was not more, but less, cost accounting. They could see no advantage, and considerable disadvantage, in assigning a "true cost" to training: it would be difficult to do; it would make training budgets unfair targets for reduction; and, most importantly, it would misrepresent the true function of training within the firm. It was important to note, we were told, that the firm was fully committed to providing all of the training necessary to accomplish its goals. Training, like other critical service and support functions, was a necessary part of doing business--if you don't do it right you pay for it later. And, in fact, we saw an extraordinary commitment to training, reaching clear across the firm. Of those we interviewed, none was more emphatic than was this firm's former CEO in stating the fundamental importance of training. As chairman and chief executive officer, he had regularly participated in management training programs, not just to demonstrate senior management's interest in its high-potential executives, but, as he told us, "to get to know them, to look them in the eye and get a feeling for the concerns and problems they were experiencing daily in their current management responsibilities." Admittedly, he was not as well informed about the firm's many sales, technical, and manufacturing programs, though he recognized the critical importance of each. Everywhere we interviewed across this firm we found the same basic commitment: where there is a need for training, it will be met with a real investment in a training program.

It was that commitment, we were told by the senior managers with whom we met that day, that would be jeopardized by a full accounting, as we meant it, of training costs. Such an accounting would send the wrong message, encouraging managers to believe that training expenses were truly fungible, in the sense that a manager could take money from training and invest it in another activity. No matter how we probed we could not shake these managers' conviction that nothing useful could be learned from a systematic accounting of training expense. To our question, "How do you know you are spending enough on training?" they answered, "It's not so much a matter of money as effort. We provide the training our employees need." When we pointed out that they had no way of comparing themselves to other firms unless each provided some form of standard cost accounting, they acknowledged that such a comparison would be interesting, but still felt it would not be worth the effort or the disadvantages the cost accounting would entail.

Among directors and managers of training in other firms, however, there was often the feeling that establishing the full cost of their program would mean real trouble. One particularly tough and skillful director of training flatly acknowledged that it was in her interest in her petrochemical firm to disperse and, in that sense, hide the costs of her programs. Her strategy was simple. She developed a series of clients among the senior executives of her firm, each of whom made direct contributions to her budget. In a real sense, only she knew the total scope of her direct expense, and she intended to keep it that way.

There is nothing surprising in this attitude. The evolution of cost accounting, with its emphasis on allocating all costs, both direct and indirect, to cost and profit centers, has been matched by a growing reluctance on the part of senior staff officers to have their activities so well defined that a cost algorithm can associate those activities with a direct set of beneficiaries. Those responsible for support and service functions believe that a significant proportion of their direct expenses properly belong to the firm's fixed cost base. From this perspective, identifying direct cost, such as the salaries of the trainees during training, only muddies the water, since the firm is unlikely to save the trainees' salaries if the training is not offered. The interests of the firm, as well as its training functions, are thus best served by focusing on the minimal additional cost of training materials, vendor contracts and, where appropriate, the trainee's necessary per diem expenses.

It then follows that the actual size of the training department, that is, its permanent staff budget, should reflect changes in the general scale of the firm or enterprise itself. And, by and large, that is what happens. While, as we noted earlier, the 1981-83 recession resulted in often sharp reductions in training personnel, our sense is that those reductions were proportional to reductions in other support and service functions. We met few trainers, for example, who believed that the training function itself had been singled out for reduction in force.

Training's ROI

We found attitudes concerning the unadvisability of subjecting training to full cost-analysis to be pervasive across the firms we studied. Few of the line-managers we interviewed evidenced any interest in knowing the full cost of training though, not a little paradoxically, most, when pressed, confessed that they wished they had a better idea of how much "value added" a particular training sequence contributed. Almost uniformly, each executive to whom training reported expected the manager of that operation to be efficient in his or her use of resources, to accept budget reductions where necessary, and to be prepared to sell the need for a particular training program to senior managers up the line. As we noted earlier, we could identify no manager of a training activity who felt pressured either by senior management or a comptroller/ planning function to develop better definitions of unit costs, or a more detailed methodology for forecasting the cost of future training needs. Almost without exception, firms planned major activities without fully taking into account the necessary additional training cost. So critical was the accounting firm's adoption of a new audit methodology (see Chapter IV), that it was decided upon without any solid estimate of either the additional direct cost of developing new training materials and documents, or the "lost productivity" that would result from the retraining of the audit staff. In all, we observed only three instances where a firm's formal analysis of return on investment (ROI) included an estimate of training costs. Each of these exceptions is worth noting in at least brief detail, for they represent situations where training costs become important--at the margin.

The first example involves one of the larger department store chains belonging to the major retail firm in our study. In early 1981 the chain evaluated the return on investment of converting to a point-of-sale cash register system. Three broad cost categories were identified for the analysis: the cost of equipment and associated software; the cost of changing the corporate computer system to support the point-of-sale system; and the cost of training sales clerks to use the newly configured sales registers. Significantly, the identifiable training cost included neither the time of the trainers who would be drawn from each store's permanent staff, nor the use of each store's dedicated training facility for the necessary six weeks. Rather, the calculated additional training cost of adopting the point-of-sale system was limited to the salaries of trainees.

In recent years most retail firms have coped with rising costs by increasingly relying on a part-time sales force and minimal staffing during off-peak hours. Most store managers are evaluated for their efficient use of personnel, largely involving increasing the ratio of sales income to personnel cost. Accordingly, no effective store manager can admit to having slack time with which to train personnel. Every hour of training in an efficiently run store is an additional hour of employment for a part-time worker. Hence the marginal training cost of adopting the point-of-sale system could be defined simply as the product of multiplying the number of personnel to be trained, times the minimum number of hours of training each required, times the average hourly compensation of the part-time sales force. It was this sum that was entered into the formal ROI.

The second example of a formal ROI that included training costs came from the airline participating in our study. As part of its preparation for the introduction of the new Boeing 767, the technical training group responsible for mechanics' training proposed acquiring a computer assisted instruction (CAI) package for simulating repair problems on the new aircraft. Because the equipment's total purchase price exceeded $100,000, it was defined by the firm's comptroller as a capital expense and, therefore, required a formal ROI. One got the feeling while interviewing the director of technical training that he welcomed the opportunity to demonstrate how the purchase of this equipment and the introduction of the computerized simulations into the mechanics' training would actually reduce costs, thereby leading to a smaller outlay for training. What made the ROI work was his ability to demonstrate that there would be fewer hours of "lost productivity" with the new training sequence and methods than with the more traditional method, which brought the mechanic to a centralized training facility for instruction. The director of technical training is now using the same approach to justify the construction of a new facility that would produce training materials to be used by mechanics during "downtime" at their airport stations.

It was at one of the two large insurance firms in our study that we found the third example of a detailed analysis of training costs in which the principal components were the trainee's salary and "lost productivity." At the time of our visit, this firm had recently won a major contract to provide a designated product to retired workers. For the divisional office that won the contract, providing the product required the telephone servicing of large numbers of policy holders. To fulfill this function, the firm would either have to contract-out the telephone servicing, or recruit and train its own service group. To determine the price of their bid, which ultimately convinced the firm to decide to establish its own telephone servicing group, the management team responsible for the proposal needed detailed estimates of the cost of training--both the direct cost of mounting the training program and the compensation to be paid to trainees.

It might have been possible to cite an example concerning the opening of the heavy equipment manufacturing plant (see Chapter II, pages 32-33) as a fourth occurence of such cost-accounted training. Recall that the young engineer responsible for developing the training sequences for the maintenance staff responsible for the new robotic assembly lines had estimated the cost of that program as roughly $25 million--$3 million of direct costs and $22 million of compensation for the maintenance staff while undergoing training. This story does have in common with our first three examples the fact that the introduction of new business/production methods made it possible and important to identify the requisite productivity that would be lost to training. In the first three cases, however, senior interests within the firm required the training manager to calculate those costs as part of the justification of the training sequence. In the case of the heavy equipment manufacturing plant, however, it was the engineer in charge of the training who himself identified the costs, somewhat to the alarm of those line-managers responsible for opening the new plant. To them, a salaried maintenance staff brought on-line prior to actual production was simply part of the larger start-up cost associated with the building of the plant itself. It was not, in other words, an identifiable training expense.

All of the above examples have in common the fact that they concern technical or manufacturing/craft training. We found no example of a management or employee development training program cost-analysis that detailed either the lost productivity or the compensation paid to trainees. Without exception, such training activity was viewed as a support or service function, paid for as part of the normal attribution of overhead costs across the firm. On those few occasions where a management training group provided extra services to a particular unit within the firm (such as when individual units of the pharmaceutical firm asked for additional K + T training) the costs charged to the requesting group consisted at most of the travel and per diem expenses of the management development trainer, the additional cost of materials, and the license fee paid to the vendor (in this case Kepner-Tregoe); usually, even those costs were borne by the budget of the management training group itself.

Training as Investment

The alternate way to finance these activities, of course, is to establish the training department as an independent cost center. Several of the major technical training institutes and sales/customer service training we observed were financed in this manner--at least partly because they "owned" their own physical facilities. In general, large scale (as well as largely separate) technical, sales and manufacturing/craft training programs are financed and managed as cost centers. On the other hand, management training, even when it has established separate facilities or conference centers, is much more likely to be financed as a service function with its costs largely subsumed within the personnel function and then allocated out to the firm's profit centers on the basis of a general algorithm.

As examples of the use of an alternate form of financing for training where a more direct link between costs and benefits to a firm's profit centers is established, we describe the operation of two training cost centers, neither of which owns a separate faculty. In neither of these training functions, we should point out at the outset, are our criteria for the full costing of training wholly met. In its own way, however, each center demonstrates the fact that such full costing is at least possible and can, under the proper circumstances, lead to a more widely shared understanding of training as investment.

The first of our examples derives from a money center bank which, each year, spends just over $6 million for its Corporate Education program. Despite its title, this program represents the best example of an integrated training activity of all those that we studied. Under the banner of Corporate Education, training is provided within four of our six domains: technical/financial training for the bank's professional staff; management and supervisory training for both senior and middle-management; clerical training for the bank's support staff; and sales/customer service training for new account-executives, in the form of an extensive fourteen-month-long training sequence that runs the gamut from introductory accounting, to advance cash management, to the presenting and selling of the transactional services that are becoming an increasingly important component of the bank's products.

Corporate Education is presided over by a senior vice-president who, though he began his career as a member of the account-executive training program, transferred to the personnel function, where he rose to become the firm's number-one personnel officer. For him, becoming head of Corporate Education was a lateral move which gave him an important voice in the shaping of the bank's training and development policies. His predecessor had moved directly from Corporate Education to the management of one of the bank's principal wholly-owned subsidiaries.

Not all training within the firm comes under the purview of the Corporate Education department. The information systems group responsible for the bank's increasingly complex computer operations operates its own separate training department, as do the internal audit group and other service and support functions. Increasingly, however, the head of Corporate Education has come to be recognized as the bank's principal training officer and, as such, is responsible for developing a comprehensive training style, if not a fully defined, firm-wide training policy. Shortly after we concluded our interviews, the Corporate Education department moved into new quarters which included space they plan to make available to other training programs as one of several initiatives to help Corporate Education get a better sense of the activities of other training programs across the bank.

At the same time as our visits, the Corporate Education department had a headcount of fifty: thirteen managers and supervisors; twenty three professionals, including technical instructors; and twelve clerical workers. These fifty were divided among five groups.

- Account-Executive (7)
- Management Training (8)
- Clerical Training (15)
- Professional Skills (18)
- Office of the Senior Vice-President (2)

The structure of the organization is straightforward--each of the four functional areas report directly to the senior vice-president who, along with the head of each area, collectively comprise an informal executive committee for the division.

The provision of professional, management, and clerical training by Corporate Education is not unlike the provision of such training in other firms--that is, Corporate Education is largely responsible for working with the firm's line-managers to identify training needs, and then providing the requisite training by offering in-house courses, purchasing packages from vendors, or directing enrollments to external courses. The senior vice-president spends much of his time circulating among his colleagues, identifying those critical problems that better training can best help solve. The members of his staff, both through their development and testing of training materials and their occasional stints as stand-up trainers, complete a largely informal needs-analysis. Corporate Education training offerings are announced annually in a catalogue used by individual managers to match their staffs' needs to the available training.

The ability to integrate organizationally what in most other firms remains highly disparate training domains, is one of this department's two special attributes. The second is in the organization and financing of its Account-Executive Training Program--their most visible, as well as expensive, activity, with an annual budget of just under $3 million. What makes the program so expensive is the fact that it includes on its budget the salaries of trainees for the fourteen months they spend in the program. It is important to note that none of the senior executives whom we interviewed shied away from discussing the program's costliness. They knew its cost and, having discussed it, were relatively clear about the benefits it brought. The most straightforward statement came from the firm's executive vice-president, who has subsequently become the bank's chief operating officer. When asked what he got for his division's contribution to this program's budget, he replied, simply, "We get the winnowing-out process accomplished."

Indeed, the Account-Executive Training Program is organized and run so that it can bestow precisely the benefit described. The process originates with the divisions, when each specifies annually how many new account-executives it will require from the next graduating class. While personnel from each division assist in the interviewing of potential candidates, individuals are also hired by the bank at large with no specific promise regarding the division to which they will be assigned.

The principal purpose of the training program itself is to match the supply of trainees to the prestated demands of the divisions. About half of the recruits to the program are newly minted MBAs, the other half are college graduates, most often with liberal arts backgrounds. The first three months of the program take place primarily in the classroom, with two accounting sequences serving as "must pass" hurdles. Then, the successful trainees begin a series of rotating internships which take them through most of the major divisions within the bank. Periodically, the group is brought back together for additional classwork and discussion, which ordinarily is presided over by two young, highly articulate bankers--one a recent graduate of the program, the other a recruit from a rival bank who can be expected to contribute a somewhat broader perspective.

Towards the end of the training sequence, there begins a series of lunches held in the firm's executive dining rooms, where trainees meet and talk with senior executives from the divisions in which they are most interested. The final act in this training drama is an assignment meeting, presided over by the senior vice-president for Corporate Education and attended by all the group heads who are committed to recruiting trainees from the graduating class. One-by-one, the senior vice-president for Corporate Education goes over each trainee's portfolio, noting his or her success in formal course work, the kinds of internships served, and the comments of the supervisors to whom each was responsible. In what was described to us as a "genial atmosphere of horse-trading," the group executives place their bids for the talent they most want, recognizing a need to give as well as take, and a responsibility for providing appointments even for those members of the training class who seem the least attractive.

There was little doubt among the firm's principal officers that its Account-Executive Training Program in particular, and Corporate Education training in general, represent an investment of firm funds in the continued supply of critical skills for what promises to be a turbulent period for American financial institutions. What distinguishes this program and makes it, as we believe, a harbinger of the type of training investment that will be valuable to many firms, is both its organizational integrity and the willingness, as well as ability, of this firm to quantify its true cost.

The program is based in a strategy that was developed by the current chief executive officer when he held the position of chief operating officer. Increasingly this strategy is dominating the bank's personnel development policies. For several years, like most of its competitors, the bank acquired employees with new skills, particularly in the area of electronic banking, by "going to the street," that is, hiring away someone else's employee by offering greater responsibility and enhanced compensation. The result, understandably, was both an escalation of salaries and increased turnover as other banks began playing the same game. When we interviewed middle managers in this firm, they had already come to understand that instead of "going to the street" the bank had decided to "grow its own"--the CEO, in particular, was prepared to insist that the bank make a continued investment in training in order to reduce significantly the rate of external hires. He developed Corporate Education to make real that promise, and he intended to use it judiciously.

Creating Internal Training Markets

Our second example of a training department run as a cost center derives from the electronics firm in our study which has a long history of "growing its own" talent. The technical training group for this firm's largest manufacturing division is presided over by Jack Bostic, a former marketing manager who, in the mid-1960s, was asked to evaluate, and then close down, the firm's attempted development of a wide range of computer-assisted instructional products. Having worked himself out of a job, Jack was temporarily posted to a divisional headquarters and, as an interim assignment, was asked to take over a small technical training group--a department with a modest budget and a personnel count of three. Ten years later, that modest beginning had grown into the firm's largest single technical training group, with an annual budget of nearly $30 million and a personnel count of over 200. In a firm renowned for a remarkably uniform corporate style in which even names of the most senior and successful executives are rarely attached to individual projects or successes, this training group has taken on an extraordinary personality of its own. Everywhere it is known simply as the "Bostic Organization." How this technical training group functions, and why it came to play the kind of innovative and integrative role that it does, is a singular testament both to Bostic's own drive and entrepreneurship and to the "investment potential" independent training organizations can have for the firms they serve.

To understand how the Bostic Organization evolved, it is necessary to understand two facets of the firm's internal control structure. First, every unit must have an approved budget. Even more important, however, is the fact that every unit, indeed often separate subfunctions within an overall organizational unit, such as a department, must have an approved personnel count or PC. No unit may hire beyond its authorized PC, thereby ensuring that the overall growth of personnel within the firm can be centrally controlled.

Jack began by investing his three PCs in the design and implementation of the project management course we described earlier in Chapter II. What Jack discovered, through offering the project management course, was the range of additional problems not being met by the technical training then offered across his division. What he lacked were sufficient PCs and a budget to meet the challenge. He solved the latter problem by charging individual plants for the training they consumed. The fundamental problem, however, was the need for additional PCs, a need that was not likely to be fulfilled if Jack sought a direct enlargement of his own staff instructors. His solution, as much a product of instinct and happenstance as design, was to borrow PCs from the groups consuming his training. If a particular plant wanted one of Jack's courses, they not only had to pay the direct cost of the trainer and materials and the indirect cost associated with their trainees' lost productivity, but they had to lend the training group the necessary personnel count as well. There quickly developed two methods of exchange. The easiest was simply to lend Jack an experienced trainer. As his program became more complex and the division's appetite for training grew, what was more often transferred to Bostic was an employment authorization attached to a PC, rather than an actual employee.

By the early 1980s, when we encountered the Bostic Organization--after having learned about it through line-managers and other trainers across the firm--it had grown into a complex organization with a series of cost algorithms, charging mechanisms, and personnel exchanges which, taken as a whole, formed a network that cut across boundaries most members of the firm believed to be impenetrable. The key operator in the group's table of organization are the site representatives--technical trainers or managers of training who legally belong to their sites though they, in fact, report to Bostic and spend half of their time at other sites. The principal responsibility of the site representative is to make sure that the line-managers at the plant understand the range of standard training courses available and the Bostic Organization's ability to provide, at a reasonable price, any customized training the plant requires. If there is sufficient demand for a particular training sequence at the site, the representative will arrange to bring other members of the Organization to offer the training on site. More frequently, these courses will be offered at a central location convenient to several plants. Because all site representatives in the Bostic Organization are technical trainers in their own right, a portion of their time will be spent on instructional activity--either offering courses locally or sharing the instructional burden of a course being offered at a centrally located facility. As the scale of the Bostic Organization has grown, as Jack himself has become more adept at locating personnel within the firm who share his enthusiasm for technical training, the group's range of offerings have become more complex. Also expanded has been its ability to mount, on relatively short notice, customized training sequences for any site with the available funds and PCs.

By the time we observed the Bostic Organization at work, its complex financial and personnel exchanges had been reduced to a series of simple cost statements that a site representative could use in estimating how much a particular training sequence would cost a plant manager $100 per student-day, and one PC for each 1,000 student-days per year provided.

In establishing his prices, Jack has also made sure that each year his operations would yield a "profit" large enough to allow him to make substantial investments in new training ventures. Given the size of Bostic's operations, those investments can prove substantial, as in the case of his new program for retraining computer programmers. A problem in Jack's firm, as in most enterprises that established their basic cadre of computer programmers in the 1960s, is that the maturation of computer science as a discipline has led to a major disjunction between newly-graduated engineers with computer science degrees and the senior programmers for whom they come to work. Members of the latter group understand the firm's way of doing business and, collectively, their experience has given the firm much of its competitive edge in the development of new systems. The future, however, belongs to the young engineers and programmers who tackle problems differently, using the tools of mathematics as well as a highly structured approach to computer programming. So different are their approaches that the two groups do not, in fact, speak the same language; therein lies the problem Jack's retraining program has had to solve. In order for the older hands to communicate their experience to their younger colleagues, it became necessary to teach senior computer programmers the rudiments of the mathematical and structured programming in which the younger engineers are trained.

To accomplish this task, the Bostic Organization entered into a consulting contract with three senior computer scientists from one of the nation's leading schools of engineering. Working with Jack's team, these consultants developed a three-part training sequence beginning with a refresher course in mathematics and focusing on new applications for structured programming. Each of the three training modules was translated into a week long, intensive offsite training seminar, the first of which was given by the three principal consultants. Assisting in the course were academics from other institutions who would, in turn, become principal instructors as the training sequence became a standard part of the Bostic Organization's curriculum. What made this complex investment possible was not only Jack's ability to commit discretionary funds, but his certainty that the product, once developed, would find a ready market of sufficient size to recoup his initial investment.

The success of the Bostic Organization demonstrates that it is feasible for large firms and enterprises to satisfy their educational needs by creating organizations to serve their internal training markets. Jack succeeded because he was good. His people were good. He understood the kinds of problems training could solve and was willing to commit his organization to responding rapidly to emerging issues and problems. What the Bostic Organization clearly did not do was create the internal training market itself. Managers in this firm were prepared to buy training services from the Bostic Organization because the firm itself believed its present and future success depended on a continuous investment in human capital. The question in the managers' minds was not "Should I train my people?" or even "How much should I spend on training?" but rather, "Who can do the best job in getting my people the skills they need?" We should hasten to add that this management philosophy is made possible in part by the extraordinarily rapid changes in the technologies used by this firm and in part by the fact that the firm has traditionally enjoyed sustained growth and substantial profit margins. No other firm in our study was so unaffected by the 1981-82 recession as the one that spawned the Bostic organization.

There is a postscript to this story, one that testifies to the inherent tension between the fostering of an internal training market and the traditional view that firm-supplied training is more service than enterprise. The singularity of the Bostic Organization had not gone unnoticed by those most responsible for maintaining consistency of organizational style across the firm. Perhaps, too, the

Organization's own occasional forays into management training had awakened the kind of territorial protectionism that allows large, complex bureaucracies to survive. For whatever reasons, shortly after we concluded our interviewing in this firm, the Bostic Organization's procedures and practices were reviewed by the firm. The resulting staff report strongly recommended the dispersal of the training functions that Jack had assembled within his group. The staff's intent was to organize technical training much as management training was organized, particularly at the plants with resident managers and small staffs. The report would have been implemented, except for the collective intervention of the presidents of the five divisions that the Bostic Organization had come to serve. Only because they were personally prepared to vouchsafe the Organization's importance, despite its structural anomalies, was the staff report shelved. That may be this story's real lesson: an explicit policy of investment in training can often preserve training's status within a firm, dispite trainers' fears to the contrary.

CHAPTER VI

TOWARD A TRAINING INVENTORY

In the preceding chapters we have argued that a principal characteristic of firm-supplied training is its decentralization. The diffusion of initiative and responsibility helps to account for training's organization, the shape and robustness of the training career, and the distinctiveness of training's separate domains. Largely outside the purview of senior management, firm-supplied training remains a decentralized support and service function, more a tactic than strategy, more a response to immediate problems than an investment in human capital.

Earlier, we recommended that large firms seeking to increase the strategic importance of their training consider ultimately organizing the training function much as they organize their research and development. As a first step in this transformation, senior management needs to gain a clearer understanding of its firm's training endeavors--that is, to find the answers to a set of basic questions: What types of training do we provide? Who is responsible for each type? What actually takes place in our training programs? How is training carried out? Who selects those who will receive training? What kinds of skills are imparted? How many of these skills are generic and how many are geared to our own firm and tasks? Do our training programs send signals to our employees, besides relaying our feeling that they should receive the particular training at issue? Can our workers convey messages to us by participating in the training programs? If we have a training group, to whom does it report? Who manages and staffs it, and how well-qualified are they to perform these functions? To what extent do we depend on outside vendors and consultants? What kinds of instructional environments exist, if any at all? Where do instructional materials come from? What equipment is used? What kind of space is set aside for training? Finally, what does training cost--in direct expenses and in lost productivity during training--and what are its benefits?

Answering these questions depends upon establishing a comprehensive inventory of training activities across the firm, one that identifies activities at each location--firm, enterprise, and site--and for each domain--management, employee development, technical, manufacturing/craft, clerical, and sales/customer service. Most useful would be an inventory to gather both more general information on the firm's training efforts and more in-depth information detailing specific programs in individual domains. In a general inventory, one would note the locations of all of the firm's training programs, briefly specifying broad characteristics of the training in each of the firm's relevant domains. Subsequent, more specific inventories would help establish "profiles" of the training efforts of individual domains, by including statements on program goals, participants, projects, and problems, by specifying the training's focus, and by recording its costs.

The purpose of any inventory is to provide, in brief but complete fashion, the direct answers to key questions. In the following pages we present a general inventory form, as well as a more elaborate profile form, for taking inventory of training in each domain. We do so, in part, to demonstrate that the conceptual framework developed in earlier chapters can lead to practical results. While we are convinced that this inventory can provide CEOs and other senior officers explicit descriptions of their firms' training activities, we hasten to add that the forms are not intended as research instruments.

The general inventory form (see Figure 1), which treats all six training domains, first identifies the company's level of location: corporate, divisional/group/subsidiary, or plant/department/office/store. Then, it provides space for briefly describing training functions in any or all of the six domains in terms of their missions, officers

GENERAL INVENTORY OF FIRM-SUPPLIED TRAINING

______________________ includes: ☐ Firm ☐ Enterprise ☐ Site

Company

DOMAIN	MISSION	RESPONSIBLE OFFICERS AND ORGANIZATION
Management		
Employee Development		
Technical		
Manufacturing/ Craft		
Clerical		
Sales/Customer Service		

Figure 1

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responsible for the training, and organization. On the first page of the training program profile (Figure 2a), each program is individually inventoried--goals are summarized, and participants, projects, and salient problems are noted. In listing participants one would indicate types of employees for whom the training is provided, specifying that they are, for example, new hires or current workers in need of training to meet the challenges of change brought on by new technologies. Listed projects could include those activities occasioned by earlier training programs, those required as a result of changing corporate policies, or those introduced in response to a new work environment. Noted problems may involve the program's inability to satisfy trainee requirements, the cost of training, or negative impact on employee morale.

The second page of each profile (Figure 2b) considers the focus of training. Space is provided for the listing of both behavioral and technical skills addressed by the program. In addition, a section is set aside for noting types of signaling, both by the firm and by the employee. Note that while signals are important in many training programs, frequently, we have found, no explicit signaling takes place; that is, there is often no conscious awareness on the part of either firm or employee of the sending or

Figure 2a

INVENTORY OF ____________________ TRAINING
DOMAIN

Location: ______________________________
(Corporate, Divisional/Group/Subsidiary,
Plant/Department/Office/Store)

PROFILE

Goals:

Participants:

Projects:

Problems:

Figure 2b

Focus

SKILLS

Behavioral Skills Training:

Technical Skills Training:

SIGNALS

From Firm:

From Employee:

SCOPE

Generic Components:

Task-Specific Components:

receiving of signals. Finally, this page of the profile allows for sketching out the program's scope in terms of the degree to which skills taught are generic or task-specific. This type of record can provide the officer with a good idea of the program's thrust.

The third page of the profile (Figure 2c) provides space for entering information regarding the actual instructional environment. Here the titles of those responsible for training are identified, as are the size, credentials, and experience of the training staff, and the extent to which outside vendors are consulted. The type and source of instructional materials, equipment, and facilities are also indicated.

The last page of the profile (Figure 2d) is designed for recording the various expenses associated with the training program. Completion of this page requires a careful review of the many costs of training--managerial, instructional, capital, and overhead cost as well as loss of employee productivity while in training. This census of expenses should enable the officer to quickly learn what training costs the firm.

A complete inventory becomes a succinct summary statement on the extent and nature of training efforts across a firm. In order to illustrate more graphically the

Figure 2c

Training Group

Reporting Line and Organization:

Manager (credentials, experience):

Staff (size, credentials, experience):

Principal Vendors/Consultants:

Instructional Environment

Type and Source of Instructional Materials:

Equipment:

Facilities:

Figure 2d

Expense

Managerial

Compensation for Training Department (including full-time instructors __________

Supplies __________

Related travel and per diem __________

Instructional

Materials __________

Outside Vendors __________

Part-time Instructors __________

In-house Experts (instructional days x average compensation) __________

Capital

Equipment __________

Facilities (including amortization) __________

Overhead

As assigned by firm (including facilities where applicable) __________

Lost Productivity

Training days x average compensation/day __________

Total __________

Less income credited through direct charges __________

Net __________

use and potential of these forms, we have completed a sample inventory, based on information gathered through our interviews at one of the twenty firms participating in our study. (Note that the forms have not been completed by the firm itself, and are intended only as samples.)

The firm in question is a medium-sized mining company, engaged in three types of training: management, employee development, and technical. On the first page of the inventory, the mission of training in each of these three domains is set forth, and the titles of officers responsible for training are listed. It is noted that the management and employee development training take place at the corporate level, while technical training takes place at the plant level. We have also completed the profile forms for the first of the three relevant domains. From the profile entries we see, for example, that management training is provided in part as a means of enabling the firm's white-collar employees to adapt to technological change. Other training goals are also described, participants are identified, a key project is noted, and a problem is specified. The balance of the form identifies the focus of the training program, and the nature of the training group and instructional environment. This inventory's last page (expense inventory) has not been completed, for reasons of confidentiality.

GENERAL INVENTORY OF FIRM-SUPPLIED TRAINING

Mining Company	includes:	x Firm	Enterprise	Site

DOMAIN	MISSION	RESPONSIBLE OFFICERS AND ORGANIZATION
Management	To take a diverse collection of individuals--diverse in formal education, training, and experience--and mold a coherent white-collar workforce that can acclimate to changing technologies.	Vice President, Human Resources, and Director of Personnel (corporate)
Employee Development	To enhance morale among salaried (office) employees.	Vice President, Human Resources, and Director of Personnel (corporate)
Technical	To provide safety training to workers in the mines, including miners, electricians, and construction personnel.	Manager, Human Resources (plant)
Manufacturing/ Craft		
Clerical		
Sales/Customer Service		

INVENTORY OF MANAGEMENT TRAINING
DOMAIN

Location: Corporate
(Corporate, Divisional/Group/Subsidiary,
Plant/Department/Office/Store)

PROFILE

Goals: To instill "the firm's way of doing things"; to establish a sense of loyalty to the chief executive officer; to provide psychological preparation for change (to make the transitions brought about largely by technological change as painless as possible to employees of long standing with the firm).

Participants: Office workers in such areas as sales, marketing, and accounting.

Projects: Providing training that enables the firm to remain small, with a work force of highly productive employees.

Problems: Occasional need to release older employees who are unable or unwilling to accept change.

Focus	
SKILLS	Behavioral Skills Training: Psychological adaptation to change; development of reciprocal loyalty (between the firm/CEO and employee); understanding of the need to ask not only "What?" but, more importantly, "Why?"
	Technical Skills Training: Better writing and communications; use of personal computers; new accounting and bookkeeping procedures; new sales methods and marketing techniques.
SIGNALS	From Firm: Sends employee invitation to meet with Vice President, Human Resources, or Director of Personnel to discuss problems as well as opportunities for advancement; offers chance to participate in a training program of the American Management Association or in a university program.
	From Employee: Shows interest in meeting with Vice President, Human Resources, or Director of Personnel, indicating a desire to take on more complex assignments.
SCOPE	Generic Components: Writing, speaking, accounting, computer usage.
	Task-Specific Components: Marketing and sales.

Training Group

Reporting Line and Organization: Vice President, Human Resources, and Director of Personnel (no training group, per se).

Manager (credentials, experience): Experience in human resources/human relations, long standing commitment to the firm.

Staff (size, credentials, experience): None

Principal Vendors/Consultants: Universities and American Management Association.

Instructional Environment

Type and Source of Instructional Materials: American Management Association-provided materials.

Equipment: Personal computers.

Facilities: Individual offices.

CHAPTER VII

TRAINING SUPPLIERS

Thus far we have examined the organization and character of training within firms. In this chapter we shift our attention to the outside organizations--including private training vendors--that regularly supply those firms with training packages and services. Due to the nature of our study's methodology, we focus our discussion primarily on suppliers that offer behavioral, rather than technical, products. Our sample, then, though itself diverse, should be viewed within the context of an even more complex training market. The best index of firm-supplied training in America is the private-sector training market it has spawned. It has required a market, rather than a training or educational system, because of its largely reactive nature--firm-supplied training resists the basic institutionalization that a system demands. As line-managers change, as new products are introduced, and as new organizational arrangements are developed by a firm, the basic mission and function of the firm's training programs will change as well. One reason so few trainers have longevity in their positions is simply that firms periodically reorganize their training functions, cutting them back when business is bad, building them anew as the firm prospers.

The main characteristics of firm-supplied training, as observed in the preceding chapters, are its decentralization, its resistance to institutionalization, its needs orientation, and its ability to change curricular emphasis, as well as instructional strategies and staffs, with remarkable ease. These features are reflected in the operation of the training market. Most organizations that serve the training market are themselves small in scale, highly specialized in purpose, ordinarily without long-established histories, and almost invariably lacking in the basic infrastructure characteristic of traditional educational providers. Training's suppliers are organized to provide what firms need most: a specific training program designed to solve a problem that the firm has identified. While most suppliers sell packages of one kind or another, their principal role is much like that of training departments--they are charged with assembling training programs that meet the needs and specifications of the line-managers who foot training's bill.

This fragmentation simply reflects how training directors ordinarily purchase training packages and services. There is, in the first place, a systematic bias against becoming dependent upon a single supplier--a bias that simply echoes the general relationship between firms and their suppliers in the American economy. Training directors spoke frankly about the need to develop two or three suppliers for even the most standard training packages. When problems changed, suppliers were changed, even though the former supplier might as easily have contributed to the development of the next training packages. Training directors from large firms in particular understood that it was not in their interest to build up one vendor at the expense of the others. Much of the training director's ability to get what he needs from the training market is dependent on the capability of small training firms to meet his demands as quickly as possible.

Small Vendors

No one knows just how many private vendors supply the training market. Some estimate that as many as one-half of the ASTD twenty-three thousand plus members are actually vendors or consultants. Even a cursory survey of the standard directories of training firms suggests there may be an equal number of independent training enterprises. We do know that, with a few notable exceptions, most training firms are remarkably small, and employ between two and ten people. Many were started by former company trainers who went out on their own. Most provide expertise in behavioral rather than technical skills, and for most, long-term profitability depends on their ability to sell the same training package to several firms.

All but one of the firms in our study were purchasers of training services. In half these firms a substantial portion of stand-up training was actually performed by outside consultants and training vendors. Frequently the name of the consultant or vendor is part of the formal listing in the firm's training announcement. In much the same way, vendors, when offering a package for sale, will identify previous purchasers as an implicit warranty of the training's practicality.

The fact that so many of the training vendors are no larger in scale than the training departments they service indicates that the "training business" is largely a cottage industry. Moreover, today's training managers are likely to be tomorrow's training vendors and vice versa. For those employed by firms there is the entrepreneurial impulse to go out on one's own, to develop his or her ideas into a coherent product line, thereby creating the equity that is all-but-denied training managers who are part of the middle-management of large firms. It is sometimes the case that would-be training vendors use their position as training managers to develop their own portfolio of products--training materials, instructional packages, strategies for needs analysis, and consultative styles. So prevalent is this practice within large firms, that in our interviewing of current training managers we often sensed an endemic irritation with predecessors who were now successfully out on their own. On the other hand, we also met a substantial number of former training vendors and entrepreneurs who, having come in from the cold, now occupied positions as training managers. These former small businessmen had simply been worn down by the constant search for new business and the almost insatiable appetite of both large and small firms for new training products.

Most training vendors offer relatively low-cost services and packages in support of behavioral training. Thus, most training vendors specialize in developing packages and providing stand-up instructors in support of the firm's management and supervisory training, their coaching and counseling activities, and their personal and career development programs. Included in this category are such diverse activities as assertiveness training, career planning, alcoholism counseling, and stress management. Increasingly, these small firms are also offering sophisticated approaches both to technical needs analysis and quality assurance. Our sense was that this largely behavioral component of the market was also its most volatile. Each year brought the formation and demise of literally hundreds of training firms as the market for their services ebbed and flowed with the fortunes of the economy.

Somewhat more stable, though smaller in number, are those vendors with technical specialities. One group includes those offering instructional design capabilities. There are vendors who specialize in sales training, in technical aspects of financial training, and in some kinds of engineering training, particularly those associated with computer programming. In addition, there are small vendors who specialize in the technical production of training materials--the preparation of self-learning packages, the design of evaluation instruments, the production of video and other audio-visual materials, and the design and production of training manuals. We observed that among the twenty firms participating in our study, none uses vendors to supply manufacturing training for production workers, or clerical training for secretarial personnel, or sales training for retail clerks--though we know from our review of trade publications and exhibitions that vendors specializing in these areas do exist.

Consultants

We make a distinction between vendors and consultants. Vendors, even the very smallest among them, strive for a corporate identity. Vendors sell products and services as well as expertise. Consultants, on the other hand, sell time. In most firms--even those with highly established, distinctively styled training programs--consultants provide a substantial proportion of the firm's "stand-up training hours." Consultants perform needs analysis, conduct seminars, assist in the design of instructional materials, and organize and conduct off-site training programs.

In technical training programs, particularly for high-salaried professionals, consultants also provide an important element of quality control by making sure that the firm's own training is technically accurate and reflects current thinking within the particular field or discipline. Training for engineers, financial specialists, and accountants are three examples of technical training fields in which individual, often highly-paid, consultants play special roles. The training consultants skilled in organizational development, industrial psychology, and behavior modification are also regular contributors to executive education and advanced sales training within major firms. Such consultants are as much known for their style--their ability to get their message across and make their audience take notice--as they are for their subject-matter expertise.

Within the broad spectrum of training consultants there are at least three discernible groups, each with a different role in the training market. The largest group, at least in terms of volume of activity, comprises professional trainers, many of whom got their start in the training departments of large firms and most of whom have had significant experience working in the private-sector. In practical terms, the dilemma facing the full-time training consultant is the need to strike a balance between charging rates high enough to pay for the development of an infrastructure, and low enough to be attractive to training directors who frequently work within limited budgets.

The second group of training consultants consists of true part-timers, men and women with excellent presentation skills who do not seek regular, full-time employment. Frequently, these training consultants work in conjunction with a full-time training consultant or a small firm.

The third, and in many ways the most interesting group of training consultants, are also part-timers, but in a fundamentally different way. These are men and women with full-time occupations who supplement their regular income by providing training services. In a few cases, the principal employer is a large firm. For example, Bill, who developed the real-estate investment training curriculum (see above, Chapter IV) and then went on to become a general manager within the division, keeps "his hand in training" by providing technical evaluations and course designs for the training programs mounted by one of the nation's major accounting firms. By far the largest number of these part-time consultants, however, comes from the academic world. Many successful business school professors, particularly in the fields of management, organization, and personnel, simply take it for granted that one of their principal activities will be to participate in firm-supplied training programs. Accounting professors regularly help private accounting firms keep their training programs current. Professors of finance, although they serve mainly as technical consultants, often lecture as part of their clients' training programs. Engineering professors play much the same dual role of providing both technical assistance and training instruction. While in the social sciences the pattern is far less common, substantial numbers of those faculty, particularly those who can assist in behavioral-based management training programs, stress-management training programs, and behavioral modification training programs (on fighting alcoholism, for example), regularly supplement their incomes by serving as instructors in behavioral training programs offered by firms. Only the humanist is routinely excluded from serving the training market, but even here a few develop a portfolio of presentations that large firms in particular use in order to add another dimension to their executive training programs.

The use of academic consultants as instructors and advisors in firm-supplied training programs is pervasive; institutions of nearly every kind indirectly serve the private-sector training market.

Commercial Vendors

Amidst the welter of small vending firms and training consultants, there is a limited number of larger scale commercial training firms. The principal activity of the largest group of such firms is the publication of educational materials: textbooks, instructional films, and video packages. In recent years, however, these traditional suppliers of educational materials have branched out and begun to develop training packages and programs. In a few firms, this activity has grown sufficiently in importance to become the responsibility of a separate subsidiary or associated company. Finally, in a limited number of specialized technical fields, computer programming being the dominant example, new enterprises have developed to provide packaged training courses for a wide range of firms.

A number of sizable enterprises that provide consulting services--large accounting firms, for example--have also begun developing identifiable training products that bear the firm's trademark. Often, such materials have been first developed and used as part of the firm's own training programs for its own staff. The next step in this evolution is for the firm to offer training to clients as part of the training they supply their employees. The final step is to offer general instructional packages on a straight commercial basis.

The third group of commercial, larger scale vendors comprises a limited number of organizations that have acquired national and sometimes international reputations and client lists. We are about to examine three different firms that fit this description. What all have in common is a single-minded entrepreneur (in one case a pair of entrepreneurs) who has developed unique, highly-personalized training strategies, and then has translated them into successful commercial packages.

By far the most successful single training package we encountered in our analysis of firm-supplied training programs was that sold by Kepner-Tregoe of Princeton, New Jersey. The K + T package is known everywhere; whether a particular training manager uses the program or not, he can tell you what it does and who uses it, and quickly sketch the package's basic assumptions and approach to problem-solving. K + T training is successful because it works. It addresses a firm's need to get management teams to think as one, using familiar terms with clear, firm-specific references. One grizzled plant manager with thirty years experience running chemical plants told us, as we quoted above, "I don't care what its theory is or why it works, I know that when my people go at it the K + T way, they are talking about the same problem and the same means to a solution." Kepner- Tregoe's promotional material states its approach in much the same way.

> The Problem Solving and Decision Making process focuses on a rational approach designed to enable managers and employees to think through the steps of problem solving, decision making and planning. The technology equips managers and employees to discover the causes of problems by first defining the problem, developing possible causes and testing these possible causes against the definition of the problem. The process also enables participants to think through the reasons for making decisions, analyze alternative courses of action and assess the risk of these alternatives.

Today Kepner-Tragoe is a firm of 200 employees, with 19 offices world-wide, and 2 affiliates serving small businesses. In 1984, it offered thirty-four separate seminars in its basic problem-solving, and decision-making training courses averaging three and one-half days each that cost its enrollees just under $700 per course. An even more extensive series of courses is offered abroad.

Kepner-Tragoe's chief product remains, however, its assistance to in-house training programs. Firms that purchase the K + T package receive an analysis of their problems, and the design of a training sequence that, as Kepner-Tragoe describes, applies "rational thinking to key areas of management." Thereafter, either Kepner-Tragoe professionals, or members of the firm's own staff trained and certified by Kepner-Tragoe at an appropriate fee, regularly offer the training to both managers and employees within the purchasing firm. Two measures of the success of this approach are the luster of Kepner-Tragoe's client list and the persistence of firms in purchasing K + T packages.

At this distance, it is difficult to say with certainty why this firm, among the literally thousands of enterprises similarly begun over the last twenty-five years, achieved such a dominant position within the private-sector training market. Kepner-Tregoe's founding was an almost classic testament to the importance of individual entrepreneurs in the private-sector training market. Charles Kepner, a Michigan-trained social psychologist, and Benjamin Tregoe, a Harvard-trained sociologist, were consultants working with the Rand Corporation, primarily on military contracts, when they began to experiment with alternate ideas for organizing collective decision-making. When Rand itself was not interested in developing a service along these lines, Kepner and Tregoe left the organization and established their own company. In the introduction to their revised book, The New Rational Manager, they portray the beginnings of their firm in the style of a Horatio Alger parable.

> Kepner-Tregoe and associates consisted of two people with a few half-formed ideas and a pint sized office in a garage. We studied the literature on decision-making, or "problem solving" as it was termed in those days, and found little that was helpful. We then went into the field to talk with and observe real managers at work--and we began to learn.

What they developed was a series of case studies, built around a mythical "Apex" company, with which to guide managers through the labyrinth of decision-making. Many attribute K + T's success to the consistency of its message as well as the mesmerizing quality of Benjamin Tregoe's own style and presentation. As we suggested earlier, its methodology works, helping managers better organize themselves to make collective decisions in a timely and appropriate way. Finally, Kepner-Tregoe has produced a package that has the look and feel of a genuine product. K + T training has an identity that is consistently communicated from its logo to its schematics to its presentation style, and firms everywhere have come to recognize it as a tangible asset for their own training programs.

Our second example tells basically the same story. Phillip Crosby Associates Incorporated is somewhat smaller than Kepner-Tregoe (having about 130 employees, 25 of whom are professionals), but has a remarkably similar client list and an equally unmistakable style in its materials and presentations. Crosby sells "quality" training--through the Quality College at Winter Park, Florida, through his books, Quality is Free, and Quality Without Tears, and through a professional services division that offers direct training to clients. In 1979, when he established his firm, Phillip Crosby had just left his post at ITT as a corporate vice-president and director of quality control. Like so many would-be training entrepreneurs, he felt he had a solution to a major problem then vexing American business. In his case, Crosby knew how to institute training programs that reestablished quality control as one of the firm's priorities.

It is still too early to tell whether Crosby will have the staying power of Kepner-Tregoe. Firms participating in our study using the Crosby quality training program spoke of Crosby's own, almost evangelical zeal as one of the principal factors leading to their purchase of his package. Understandably, Crosby has spent considerable effort building an account-executive cadre. New recruits have, on average, twenty years experience, either in manufacturing or the military. Account-executives are selected only after intensive interviewing by Crosby himself at the company's Winter Park headquarters. The goal of the interviewing is to ensure that the "Crosby professional" fits the mold that the firm's founder has created. Following an extensive certification process, account executives serve as the organization's principal trainers, operating as both the instructors at Quality College and as managers of individual engagements at client firms.

When a firm seeks training from Phillip Crosby Associates, it is made plain that all the firm's employees must participate--beginning with the president and CEO, and continuing down to non-salaried, non-supervisory employees. Members of the latter group are trained in-house at their own firm, while top and middle management are often trained at the Quality College.

Our third example, Robert F. Mager Associates, is strikingly different in both style and scale. The only two full-time members of the firm are Mager and his assistant. What Mager sells is not an approach to problem-solving, but techniques for training itself. Mager was one of the first to develop systematic instructional design as a packageable methodology. In seven books, the best known being Preparing Instructional Objectives, and in countless presentations, Mager has preached the gospel of sound training pedagogy.

Mager himself leverages his effort through the careful use of "course managers"--training consultants he has certified and recommended as being competent in the Mager methodology. Much of his impact in the field comes from his training of trainers, currently done in four annual workshops. We first encountered Mager's methods, however, in one of the largest manufacturing firms in our study, which, as part of a substantial investment in manufacturing and skilled-crafts training, was converting experienced craftsmen into full-time instructors. Mager's associates provided new trainers with both background in instructional methods and guidance in the development of the new training curriculum.

We have chosen to highlight these three training firms since, in our study of the training programs of twenty American corporations, they were the most often cited as examples of good training vendors. What the three have in common is striking. Each is dominated by a training entrepreneur who believes he has brought to the training market a practical solution to a real problem. Kepner-Tregoe helps firms solve the problem of collective decision-making and team management. Phillip Crosby Associates Incorporated helps build expectations of quality into the performance of every job. Robert Mager Associates helps firms use the experience and expertise of their staff to create well-designed training modules. Each of the three has developed international reputations of sufficient stature to establish its own training school, thus allowing them to reach out widely to both large and small firms, and to create an extended market for their own training materials: manuals, graphics, and audio/video cassettes. Finally, and most importantly, each of the three prospers because of its remarkably low unit costs. None of these firms' training activities is capital-intensive, requiring either specialized facilities or expensive equipment. It is a go-anywhere--anytime kind of training that allows each of these vendors to respond quickly to an individual firm's request for services.

Secondary Commercial Vendors

Often overlooked in catalogues of training vendors are some of the nation's largest corporations that produce capital equipment for both the domestic and the international markets. Major manufacturers of computers, aerospace products, military hardware, and automated production equipment provide, as a matter of course, both detailed training manuals and on-site training programs to teach purchasers how to use their equipment. Where there is an ongoing relationship between the vendor and the customer, there is frequently a training link as well. Most manufacturers of mainframe computers, for example, expect that their service engineers will periodically train the customer's operations staff in the use of upgrades to the system.

We have called this realm a "secondary commercial training market" for two reasons. First, the firm buying the equipment seldom makes a separate decision to buy the training. It is assumed that training is part of the seller's package. More importantly, the training supplied by the manufacturer's equipment is seldom controlled by the training department itself and hence is not often integrated with the firm's other training activities.

Institutional Suppliers

Another group of large scale training providers comprises a limited number of quasi-public institutions. For the most part, they constitute trade organizations, like the American Banking Association, which regularly supplies course materials, course instructors, and organized courses to the banking community it serves. Most trade organizations have some training components. Sometimes these institutional suppliers get into the business of training because of basic changes in the industry they serve. The American Petroleum Institute, for example, has developed a training package in instrumentation precisely because of the rapid introduction of positive feedback control systems into American refineries.

In a few limited cases, trade association training programs also have a political and public policy cast. The

"Unilateral Training Program Guidelines and Standards" developed by the Associated General Contractors of America (AGC) plays an important role in that association's campaign to increase its "open shop" members' share in the construction business. One way to reduce construction costs is to change the ratio between skilled craftsmen and apprentices. In non-union construction companies a whole series of steps exists between the beginning worker or apprentice and the most skilled craftsman or journeyman. The AGC believes that its training guidelines and standards, by defining programs for each step in that progression, help establish the legitimacy of sliding-scale hourly wages.

Academic Suppliers

Two paradoxical statements describe the role that formal educational institutions, particularly colleges and universities, play in supplying the training market. The first is simply that the academic role is pervasive. More than three-quarters of the firms in our study were direct purchasers of educational and training services supplied by members of formal educational institutions. The range of such services covers the gamut of the academic enterprise itself, from the most theoretical to the most applied. Similarly, academic institutions of every shape, size, and description can be found servicing the private-sector training market: community colleges as well as major research universities, vo-tech schools as well as small liberal arts colleges.

The second, seemingly paradoxical statement is equally straightforward: traditional education's share of the training market is remarkably small. Ernest Linton correctly describes business-college relations in terms of a "missing connection." Of none of the firms participating in our study can it be said that formal educational institutions supplied even 10 percent of the educational and training services purchased by the firm.

The best evidence of the scale and scope of higher education's role in the private-sector training market comes from Michael Tierney's analysis of the triennial educational survey conducted as part of the May Current Population Surveys in 1969, 1972, 1978, and 1981. This analysis based on employees' accounts of their work-related training and education over the preceding twelve months, allowed us to estimate the volume of training supplied by postsecondary institutions and its distribution among types of suppliers and types of occupations.

We began first with the volume of training paid for by firms, either directly (firm-supplied) or through tuition remissions (firm-provided).

Turning to the distribution of training by type of institution, two features stood out: the almost constant share of the traditional educational market held by four-year institutions (51.9 percent in 1969 versus 50.1 percent in 1981); and the notable rate at which community colleges have expanded their share of the market at the expense of vo-tech schools.

The educational survey for 1981 used a slightly fuller set of categories of educational suppliers, allowing us to discover more fully the contours of this segment of the private-sector training market. The two additional categories included were: organizations (including professional and trade associations along with train unions) and public agencies. Collectively, these groups supplied 10 percent of the training that employees reported as having received from traditional suppliers of education and training.

Still, there is a sad predictability in most educators' conceptions of their institutions as direct suppliers of educational and training services to the private-sector. There is, on the one hand, an exaggerated concern that business does not really understand the nature of education and hence the importance of genuine training. Businesses are seen as too often wanting a "quick fix" rather than a comprehensive educational program to teach long-lasting skills and knowledge to workers. Businesses are held in suspicion for wanting to develop their own educational capabilities, and educators everywhere wonder out loud if the small number of for-credit educational programs currently operated by private firms are not harbingers of a coming shift in educational programming, particularly in the area of technical education. At the same time, these educators cast a longing eye on America's firm-supplied training programs as a potentially inexhaustible market for their own excess capacity. What could be more natural than recruiting the "baby boom" graduates of the last two decades as continuing customers, enrolled in life-long educational programs supported by their employers? Carol Francis was not alone in suggesting to college and university presidents that the antidote for the dismal demographics of the 1980s and 1990s would be the educational appetites of a growing number of highly educated technicians in constant need of new training for keeping pace with new technological developments.

What troubles the college president and those responsible for developing this private training market on behalf of institutions of education is their inability to make real connections--to understand fully what businesses want, how they intend to pay for training, and how they expect educational services to be delivered. College presidents fret that businessmen do not understand the importance of a formal curriculum and the relationship between faculty review and academic credit. If they chastize their faculty for being at times too inflexible, college administrators nonetheless are constantly surprised by the private-sector's need for concentrated doses of instruction at odd moments, at seemingly remote locations. While there is a genuine desire to serve the private-sector training market, there remain underlying questions as to the cost of this service and the terms on which it should take place.

There is, of course, the business leader's side to this story. Although we have already quoted Robert Holland's critique of academic suppliers, his observations are worth repeating in this context. Holland--then president of the Committee for Economic Development--reported that chief executive officers of a number of American firms felt a growing sense of frustration with "the seriously inadequate performance of our educational establishment." Holland described the officers he surveyed as being

> somewhere between disgusted and outraged, typically, in terms of how they felt about the quality of employee education relative to their needs, and not only theirs, but the other businesses up and down the street. It was one of the most unanimously felt feelings I got in my whole survey.

Speaking specifically of higher education's perceived failure in the field of adult, job-related education, Holland reported that firms' officers saw a need for

> much more skill training--retraining--at the adult level to help people adapt to what they thought were going to be much more rapidly changing technical demands of jobs over the next decade or two.

Much more than rhetoric is involved here. There is, in fact, a serious failure on the part of potential buyer and seller to understand the real terms of their likely exchange. One of our more sobering interviews was with the senior personnel officer of a regional division of one of the nation's largest insurance companies. That division had recently won a contract to service a group of retired workers with a new insurance product. The servicing itself would be done by telephone, since the retirees were scattered across the country. This particular divisional office had little prior experience in either the telephone servicing of customers or in working with older citizens. Before recruiting his first group of telephone service representatives, this personnel officer turned to a large university's institute on the aging for help in designing an appropriate training program. The personnel officer himself, as he told the story, is a firm believer in supporting educational institutions and wanted very much to build a long-term relationship with this particular institute on aging. In fact, the relationship lasted less than two months. Slowly shaking his head, the personnel officer told us, in referring to the faculty from the institute, "they wanted to teach us what it meant to be old, we wanted to be trained in best how to speak to old people."

One should not minimize this difference in perspective. Most colleges and universities simply do not understand how firm-supplied training works--what are its goals, who speaks for training within the firm, just how flexible one should be in providing credit for equivalent experiences or in protecting the proprietary interest of the firm when providing its employees with formal, for-credit instruction. The college or university administrator is even less certain how to respond to the firm's need for non-credit training, as in the case of the telephone service representatives. Colleges and universities, even the most prestigious and expensive among them, are now far less squeamish than they have been in the past about selling their services. What they still lack, however, is a sense of just how important a well-conceived product-line is when selling training services to a firm. Colleges and universities instinctively want to provide knowledge and information, while firms seek training and competencies.

We now suspect, however, that these attitudes on the part of collegiate administrators actually play a relatively small role in explaining why educational institutions have not been able to sell more of their excess capacity in the private-sector training market. It may be that the functioning of the firm and the organization of the training market itself make it all but impossible for formal institutions of education to play a substantially larger role than they now do.

Faculty as Competitors

The inherent conflict between a faculty member's role as a training consultant and his or her institution's plan to become a training supplier is a well-known but seldom discussed fact. In seeking to win a larger share of the training market, a college or university's principal assets are its people--those faculty already serving as training consultants. The problem, as every college president knows, is that ordinarily these faculty view their work for the private-sector as independent from their college or university obligations. To win a larger share of the training market, colleges and universities would necessarily have to establish their faculties' "training businesses" within an institutional framework--much as medical schools over the last ten years have established clinical practice groups owned by the sponsoring university or hospital.

Part of the problem is one of labels. Ask training managers of major firms if they make use of local educational institutions, and they will frequently list the large number of college and university faculty members who participate in their training programs. The training manager will often report that he or she works closely with the local college, and will cite the faculty from that institution who helped to design and offer instruction within a particular training course. Only when they are asked "With whom is your firm's contractual arrangement?" does the training manager explain that it is with the individual faculty member. American professors, particularly from some of the largest and best known colleges and universities in the nation, regularly use their institutional affiliation as an implied warranty for the quality of the services they seek to sell. Faculty with long established reputations and stable client lists will ordinarily establish a separate "consulting identity," and will dedicate a phone number and mailing address to it. Many faculty, however, are not as scrupulous about keeping their two enterprises separate. Consequently, firms frequently contact faculty at their institutions, and it is not at all unusual for the materials used in the training course which the faculty member offers to have been first developed as part of his or her instructional duties for which compensation was received from the college or university.

This is a cruel paradox when viewed from the institutional point of view. The faculty members with the greatest experience and most established reputations in the private-sector training market have the least incentive to assist their own institutions in developing a successful set of training products and services. Under present arrangements, the faculty member charges what the market will bear and considers the total sum as extra compensation. To the extent that the faculty member uses his or her institutional office and identity to develop new products, the institution is absorbing the indirect cost associated with that activity and in effect subsidizing the training program to which the faculty member is selling his or her services.

Simply to recover its own costs, the institution must either add an overhead charge to the faculty member's fee, thus making the service less competitive, or reduce the extra compensation the faculty member receives. Yet, most institutions have built into their own expectations the assumption that key faculty members can earn substantial sums with which to supplement their academic pay. One way to maintain the service and loyalty of a faculty member in a field where there is considerable disparity between academic and private-sector compensation is to encourage, and even assist, faculty in developing consulting practices. When such encouragement takes place, the institution is at least implicitly trading off its ability to serve the private-sector training market under its own label and its ability to retain key faculty who might otherwise take positions in the private-sector. The net result is a substantially muted effort on the part of educational institutions to win a larger share of the private-sector training market.

The Limited Scale of Training Purchases

We suggested above that an alternative might be for educational institutions to follow the example of their medical schools in establishing group practices for serving the private-sector training market. In fact, such a development is unlikely, principally because of the absence of large-scale purchases by firms of training services. What has made clinical practice economically feasible is the emergence over the last two decades of both public and private third-party payers for health care. With the concentration of economic activity in a limited number of reimbursing agencies--Medicare and Blue Shield, for example--the medical profession itself has come to look less and less like the cottage industry it was before the Second World War.

There has been no similar concentration of economic activity in the private-sector training market. It is served by a cottage industry precisely because the average purchase remains so small. Of those we analyzed among the twenty firms participating in our study, the largest single purchase of training materials by an individual training program was the $800,000 spent to develop the real estate investment training program we described earlier. Even then, the manager of that training program did not execute a single $800,000 purchase order, but rather a series of purchase orders over a three year period.

Educational institutions are inherently expensive enterprises with large fixed and overhead costs. They are most successful in selling their services when there is a clearly regulated market--for example the selling of research services to the federal government, where the rules of reimbursement and audit are well-established and competitions are not often won on the basis of price. What colleges and universities seek when they serve any market is not profit but reasonable cost recovery. They assume that a service's price is not so much a matter of negotiation as calculation. Under normal procedures even a modest program will cost the sponsoring institution $100,000 to organize and operate in its first year--a price tag out of the range of most firm-supplied training budgets.

The Limited Authority of Training Managers

There is a second complicating factor not well understood by those within colleges and universities who seek to develop training programs for the private-sector market. Ordinarily, a dean within a college or university will have considerably more status than the training director to whom he or she is trying to sell educational services. Training directors have limited ability to commit their firms to long-term contractual arrangements or to develop relationships that extend much beyond the immediate context. Thus it is fundamentally easier for the training director to negotiate with individual consultants or small firms precisely because they have low overhead, are willing to make short-term commitments, and understand that the training director's priorities may substantially change in six months' time. In every sense of the word, the small vendor and entrepreneur is a less demanding seller than an educational institution, and hence less challenging to the training director's status within the firm.

Under-Capitalized Enterprises

One possibility would be for educational institutions to develop services and products not currently provided by small vendors and consultants. If the technology that will create so much of the need for retraining is being created on college campuses and universities, then should not these institutions play a major role in actually providing training for the new technologies? It is clear that few, if any, of the private firms serving the training market, save the manufacturers of the new technologies themselves, are likely to develop significant product-lines in this area. What small vendors and consultants do best is teach people skills and evaluate current capabilities--two services that require little investment in equipment or facilities. Technologically based training, therefore, represents the largest single target of opportunity for educational institutions seeking a larger share of the private-sector training market.

The sad truth of the matter, however, is that educational institutions almost uniformly lack the development capital for establishing state-of-the-art programs in technical training. Everywhere, concerned educators, even at some of the nation's best schools of engineering, worry that their graduates do not have sufficient "hands on" experience with the new generation of manufacturing and design processes simply because the necessary equipment is so inordinately expensive. Vo-tech schools, at the other end of the spectrum, face precisely the same problem: the inability to equip their facilities with state-of-the-art devices with which to train their students in the new manufacturing processes.

There are, then, a set of structural as well as attitudinal barriers preventing academic institutions from expanding their collective roles as suppliers to the private-sector training market. Colleges and universities are frequently in competition with their own faculty. They have such high fixed and overhead costs that it is often uneconomical for them to compete for the relatively small-scale training purchases that characterize the private-sector training market. To the training directors who make these purchases, they are often unacceptable suppliers because of their need for longer-term contractual relations. Finally, their lack of development capital prevents them from establishing training programs in the new technologies.

Change comes slowly to the educational enterprise, but there are a few important exceptions even now to our general conclusion, which suggest a potentially brighter future.

The first of these exceptions is the growing importance of the American community college as a leader within the educational industry itself. Because it is organized differently than its more traditional four-year counterpart, the community college has found it fundamentally easier to develop direct relationships with firms of all sizes. In part it is a matter of style and mission. The community college is much more likely to develop its educational offerings as discrete units rather than as parts of a larger curriculum. There is a well-established tradition of offering non-credit and job-specific instruction within the community college environment. The community college, precisely because it employs such a large number of part-time and adjunct faculty and is willing to change courses, times, and places of instruction at the very last moment, finds it easier to fulfill the short-term demands that make up the training agenda for most American firms. When the community college has also been able to develop a reputation for sustained and consistent quality, it has been able to win substantial numbers of corporate clients.

Second, a growing number of major manufacturers of new technologies recognize a need to supply equipment to educational institutions. Among major manufacturers of micro-computers, for example, there is a growing willingness to supply equipment at considerable discount to colleges and universities that seek to make the micro-computer a major instructional tool. IBM recently announced that $50 million in direct grants will be made available to schools of engineering to better develop their training in computer-assisted design and computer-assisted manufacturing. The General Electric Corporation's Evondale plant is currently the site of a major initiative with the United States Department of Labor and the local Private Industrial Council (PIC) to develop a new curriculum for training machinists that will directly benefit traditional suppliers of vo-tech education.

Third, there are at least some preliminary signs that changes in firm behavior may lead to a more sustainable partnership between the firms and traditional educational institutions. We found the clearest example of this emerging relationship in a large industrial city, where the local university and its faculty play substantial roles in the training programs of the major firms in that community. In one of those firms, the need to reduce training costs, as part of the general reduction in expenses occasioned by the 1981-83 recession, led to the discovery that several different training programs within the firm were using the same instructors from the local university. Once the duplication of effort became clear to the firm itself, the university dean with the largest stake in his institution's outreach program was approached. What resulted was a contract between the firm and the educational institution in which the rates for instruction paid to that school's faculty were standardized and a proportion of the appropriate indirect costs borne by the university were to be paid by the firm. The "losers" in this negotiation were the individual faculty members, since the overall amount of money being spent by the firm actually declined and the revenues received directly by their university increased. The severity of the recession helped make these alterations possible by limiting the ability of the faculty to sell their services elsewhere. Just as important, however, was the decision made by the firm to negotiate with the university as a firm rather than as a series of largely disconnected individual training departments. Indeed, our principal conclusion is that it is the behavior of the firm, its definition and organization of its own training needs, that structures the private-sector training market and has made it difficult for educational institutions to play a more direct as well as expanding role in providing direct services.

METHODOLOGICAL NOTE:
BUT NOT IN PAGO PAGO

Every cultural anthropologist shares the same nightmare. He stands before a room crowded with colleagues, presenting the findings of a lifetime of field study. As he finishes, a hush comes over the crowd. Then, from the back of the hall, there is a stirring as a colleague rises and observes to the speaker, "George, that was a masterful presentation. You have indeed explained much that in the past was at best murky, and I am sure that the patterns of behavior you observed are common in many cultures, but not, I am sad to say, in Pago Pago."

It is a nightmare which haunts all of us who do case studies. There is that nagging suspicion that if we had carried our research just one case further, the generalizations which now seem so convincing would be revealed for what they really are: coincidental patterns that are more indicative of how we chose our cases than of the underlying dynamics of the systems we sought to explain. Our study of how and why firms invest in the skills of their employees is certainly no exception. The twenty firms we explored were like a few islands in a sea of thousands, and some of these were so large that we could only sample segments of their activity. More than once, as we sought to generalize a firm's approach to training, we were told, "That's true at Elmira. What you need to understand, however, is that the plant in Poughkeepsie has a much different tradition." Even in small firms--and our smallest had but forty employees--we suspected that training perspectives could vary by the month of the year if not by the day of the week. "Had you come in January," we were told, "you might have drawn quite different conclusions."

Our study faces the further difficulty of not being able to identify the participating firms. To the corporations that allowed us to observe their training programs closely, we made two promises. First, we would absolutely preserve their confidentiality by not revealing their names nor replicating the documentation they shared with us. In return, each participating firm gave us wide access to its personnel, line-managers as well as trainers, and to its training documents, including budgets, business plans, and course materials. Our second pledge was not to make yet another contribution to the genre of the "thinly disguised case study." Ours would not be a report whose principal fascination would lie in the enticement to guess which firm served as the model for Company A and which for Company B. Instead, it would be a thematic report in which the experience of particular firms would be used to illustrate basic training trends.

In choosing a case study methodology, then, we began with the judgment that a superficial survey of corporate practices and intentions was not appropriate. The primary mission of our study was not to gather more data, but better, informed data. We accepted the limitations of the case study, including the need to preserve the confidentiality of the firms, so that we might focus not on reports about decisions, but rather on the observed consequences of those decisions.

The selection of the firms for participation in the study was, from the outset, complicated by two basic facts of corporate life. First, most of what is known about firm-supplied training comes from those firms that believe they have a story to tell. In the United States, education is such a positive value that few make a virtue of recommending its curtailment or elimination. Those forced to make cuts do so quietly, rationalizing the action as a temporary necessity due to current economic trends. Because we were much more likely to learn who trained and why than who did not train and why not, we have included only firms with substantial reputations within their own industries for engaging in firm-supplied training.

The second complicating fact involves the scale of the firm. Small firms, because they are unlikely to have a separately defined training program, are unlikely to be noticed for their firm-supplied training and education. Put simply, it is the rare small firm that, even among its peers, will have a "training reputation." Small firms pose the further difficulty of their finding it costly to participate in such a study. A small airline, having initially agreed to participate, dropped out, citing its inability to commit the necessary staff for the interviews as well as the fact that it was being reorganized. We have no reason, moreover, to believe that small firms often train their employees. Quite the contrary, our analysis of the Current Population Surveys, as well as our interviews across the twenty firms participating in our study, all point to the fact that small firms are largely the consumers of the training investments other institutions make in teaching workers new skills. Our study does include one very small firm, a highly specialized biotechnical company, and two other firms with less than 500 employees: a wholly-owned manufacturing subsidiary of a European firm and a furniture manufacturing concern. For the most part, however, ours is a study of large, esta- blished firms. Three of the participating twenty firms had more than 250,000 employees in the United States. Most firms had between 20,000 and 100,000 United States employees. Most were firms with strong corporate images and, as we discovered, remarkable diversity within their enterprises.

To make the actual selection of firms we began by defining six broad categories of firms.

1. Firms whose technologies are based on the silicon chip. These enterprises, more than any other group of firms, require highly adaptable engineering training as well as the ability to train service engineers and sales forces in the repairing and marketing of rapidly changing technologies. These firms are most concerned with the tradeoff between technological investment (leading to job simplification) and training investment (leading to more adaptable and flexible technical staffs).
2. Firms whose technologies involve biological and chemical processes. Like "chip companies," the pharmaceutical and chemical companies must harness a rapidly developing technology, which is taking them into new markets requiring new manufacturing techniques.
3. Firms employing extractive technology. While this technology changes less rapidly than the silicon chip or pharmaceutical industries, the sheer growth of extractive operations, and the demand for skilled workers in this area, offer an important opportunity to study the match between the supply of skilled employees and the demand for those skills. To what extent, for example, do major oil refining companies solve their

labor problems by training new employees, by pirating skilled employees from other firms, and by making do with less qualified employees in skilled jobs?

4. Firms providing financial services. Traditionally, financial institutions, principally banks, insurance companies, accounting firms, brokerage houses, and consulting groups have made heavy investments in training their white-collar employees. Because the institution's product is so often its people and their way of doing business, a premium is placed on ensuring that all employees understand their tasks and the company's particular style. Today, such firms are undergoing major changes as they reach out for new markets by offering new services. By observing how they go about retraining current staffs, and by measuring the extent to which they decide that only by substituting one set of employees for another can such changes be made, we can assess the ability of training to help firms make major changes in the way they do business.
5. Traditional manufacturing and mining concerns. By most accounts, a few decades ago traditional manufacturing and mining firms spent little effort training their production workers. The rise of new rules requiring substantially more safety training (OSHA), the drive for increased productivity, and the introduction of robotics

have led an increasing number of American manufacturing and mining firms to expand their programs. The scale and content of these new training initiatives, in turn, provide an index of these firms' ability to make human capital investments.

6. Retail firms. Historically the retail industry has trained most of its managers by moving them from smaller to larger stores and from simpler to more complex assignments. Sales clerks, in contrast, have received mostly on-the-job training with little formal course work except as part of the general personnel development program of the chain. Some observers have suggested that this pattern is about to change. The tasks assigned to sales personnel will grow more complex. Thus, the retail industry--with its consolidation through the growth of large chains--provides one potential barometer of training opportunities not directly tied to technological change.

In addition, we employed two selection criteria that were not directly related to a firm's products or function. We sought, in the first place, to be as geographically representative as possible. While many of the firms would necessarily be headquartered in the Northeast, we sought to include others with corporate headquarters elsewhere, as well as firms that operated training programs in more than one region of the country.

The second of these criteria focused on training as a means of ensuring full employment. A few major corporations--and they are very few--have as their announced policy the preservation of each employee's right to employment by the firm. When markets change or technologies make current jobs obsolete, these companies are prepared to train the displaced employees for other jobs within the firm. The cost and benefits associated with this policy tell us much about the ability of training to create employment as well as to achieve a better fit between job skills and job demand within a well-defined labor force. At the time of their selection, four participating firms had an announced policy of full or life-long employment. The severity of the 1981-82 recession, however, led two to announce significant reductions in force.

Figures 1 through 3 classify the twenty firms participating in our study according to size, geographic region, and principal product/function. The careful reader of Figure 3 will note that the total number of product/functional areas represented is greater than twenty. Once we understood the decentralization of training, ours increasingly became a study of enterprises and individual

Figure 1

Size of Participating Firms

Number of Employees	Number of Firms
100,000 or more	3
25,000 to 99,000	9
5,000 to 24,000	2
1,000 to 4,999	3
Less than 1,000	3

sites. The result was a study of some 47 enterprises (46 sites) distributed over 17 states (see Figure 4).

Because ours is not a representative sample, no attempt should be made to draw statistical inferences from our analysis. To lessen the possibility that our findings would be taken out of context, we have not reported summary numerical data in tabular form, rather, we have presented broad trends.

Three additional caveats need to be kept in mind when interpreting our findings. First, we have not discussed differences among firms or between industries. Although initially there was a modest attempt at pairing participating firms (for example, two large insurance companies--one stock and one mutual) for the purposes of contrast and

Figure 2

Distribution of Corporate Headquarters
of Participating Firms

	Number of Firms
New England	2
Mid-Atlantic	9
Midwest	3
South/Southwest	3
Pacific Coast	3

comparison, we quickly discovered that organizational style, firm location, and economic outlook were as, or more, likely to account for differences in training programs than the nature of the industry. In general, we can note that firms with large numbers of engineers, computer specialists, and trained professionals will have more complex training programs. Such an observation, however, is much better documented in our companion analysis of training as reported through the Current Population Surveys (CPS), in which we concluded that the more education an employee had received, the greater his or her probability of receiving firm-supplied training.

Second, we note that our sample is shy on regulated industries. (For example, we did not include a public

Figure 3

Principal Products/Functions
of Participating Firms

Product/Function	Number of Firms
Electronic (silicon chip based technologies)	3
Chemical/Biological	3
Extractive	3
Financial Services	6
Manufacturing/Mining	5
Retail	1
Construction	1
Transportation	2
Publishing/Information	1

utility.) It is not wholly cynical to observe that where training is an accepted part of a regulated company's cost basis, there is an economic incentive for that company to train. We have not discussed how regulation might either encourage or give particular shape to training programs.

We note that in the critical area of training and trade unionism we are simply not in a position to report substantive findings. While more than half of the firms in our study were not unionized, more than half of the workers employed by the firms in our study did belong to unions. In some cases, training was an integral part of the union's

Figure 4

Distribution of Interview Sites by State

Massachusetts	2
Connecticut	4
New York	5
New Jersey	2
Pennsylvania	9
West Virginia	1
Delaware	1
Florida	1
Illinois	2
Michigan	4
Minnisota	2
Ohio	1
Kentucky	1
Oklahoma	1
Texas	6
California	3
Washington	1

Total interview Sites : 46

Total number of States: 17

contract. In other cases, training was not a matter for collective bargaining. In one firm we noted a plant in which two wholly separate unions shared the shop floor. One was deeply concerned about how training could help smooth the introduction of new equipment as well as how such training might effect traditional lines separating crafts. The plant's other union, however, focused almost exclusively on traditional grievances and wage demands. It is true that, in some non-unionized firms, management training was expected to instruct supervisors how "to recognize early signs of union organization" and to "learn the actions to take in the event of an organization effort." Yet it is also true that in other firms a key part of management training involved teaching how to work with unions and their leaders. The only conclusion we could draw from this range of conflicting views and practices was that training matters as an issue for collective bargaining primarily when the problems training is meant to solve are personally important to local union leadership--a finding wholly consistent with our general observation that training is more tactic than strategy.

Our study also does not address franchise training--which we have every reason to believe is taking place to a significant degree across virtually every franchise activity. Our resources simply did not allow us to extend our research to include this realm. As we suggested at the outset of this methodological note, ours has principally been a voyage of discovery. We understand that our interpretative framework is speculative and that our findings are often tentative. Research into the training function within the American firm is just beginning. (Nell P. Eurich and the Carnegie Foundation for the Advancement of Teaching published their study on this subject--*Corporate Classrooms: The Learning Business*--earlier this year.) Our study, if it is to prove useful, will succeed because current policy makers and researchers find the framework we have deduced from our experience helps them plan their own expeditions.

Our Case Study Process

The selection of firms and the actual interviewing took place in three distinct phases. We began by selecting five firms and developing our interview protocols. At the conclusion of this first round of interviewing, it became clear that we needed to broaden the focus of our inquiry, making sure that we included all areas of training, including sales, and that we understood better the distinction between corporate training and education, on the one hand, and the activities of plants and enterprises on the other. When we had concluded initial interviews, training directors from 14 firms joined us in Philadelphia for the first of two intensive two-day reviews of our initial findings and methodology. One result of that meeting was to cause us to study more training efforts targeted for production workers (and more in firms with collective bargaining agreements).

Several times, the list of participating firms was reviewed on behalf of our policy panel with Reginald Jones, the former chairman and CEO of General Electric. Although the selection of firms and the focus of the study evolved over a three-year period, the basic methodology for constructing the cases remained relatively constant.

The process ordinarily began with Martin Meyerson's direct contact to a firm. (Professor Meyerson, co-principal investigator with Professor Robert Zemsky, is President Emeritus of the University of Pennsylvania and a director of various operations. Professor Zemsky is the University of Pennsylvania's planning officer and director of its Higher Education Finance Research Institute.) Mr. Meyerson would contact a senior official, usually the chief executive officer. In all but two cases our request for a firm's participation was accepted. Each of the firms that declined was about to undergo significant alterations in character or control.

What next followed was a visit to the firm by Professor Zemsky. That visit was typically with a liaison officer assigned by the top management of the firm to work with the project team. It was at this meeting that the dimensions of training within the firm were first specified and the initial sites for interviewing established.

On occasion, the liaison officer would accompany an interviewer during interviews across the firm. At no time, however, did the project team members feel constrained by his or her presence. For the most part this contact gave the liaison officer, usually a corporate staff member, an opportunity to learn what was happening in the field. Approximately one half of an interviewer's time on site was spent with those responsible for training. Frequently, these were group sessions that the interviewer conducted like seminars--each trainer being given an opportunity to tell what his or her group did as well as to comment on general issues of training important to the firm, enterprises, or site. The remaining half of the interviewer's schedule was occupied with line-managers and executives, usually with just the interviewer and manager present.

The second two-day meeting of training directors from participating firms reviewed a set of propositions that became the basis for our report's conceptual framework. That meeting helped sharpen our findings and provided further questions to be asked in the remaining interviews. Draft copies of this report were later circulated to all participating firms, allowing them further opportunities to correct errors of fact and comment on our conclusions. In addition, we tested our analyses and policies of the study in a one-semester seminar at the University of Pennsylvania.

We used senior interviewers whose experience could help elicit information on subjects that were seldom talked about within the firm itself. Roughly one half of the interviews were conducted by Professor Zemsky.

The other interviews were conducted by Ivar Berg, then chairman of the Department of Sociology, the University of Pennsylvania; Dr. Lida Freeman-Brennan of the University and herself a former chief executive officer of a firm; Andrew Lupton, then Vice President, Management Division, the Academy of Educational Development; President Emeritus Martin Meyerson; Katharine Hanson, Executive Director, the Consortium on Financing Higher Education; John Starr, Professor of Geography, University of Maryland, Baltimore; Penney Oedel, Senior Editor, Higher Education Finance Research Institute, University of Pennsylvania; and Miriam Kroon, Research Assistant, Higher Education Finance Research Institute, University of Pennsylvania.

The interviews themselves were largely open-ended, though each interviewer was prepared with a set of topics to be covered. Interviewers submitted a set of written notes as well as copies of all materials supplied them by the participating firm.

We make no claim to having constructed a fully representative sample of firms. To have done so would have required a much greater number of case studies. Even the simple taxonomy we developed--derived from six product/function designations, four geographical regions, and five categories of firm size--results in the designation of 180 distinct training environments. Truly representative results would have entailed many hundreds of separate case studies.